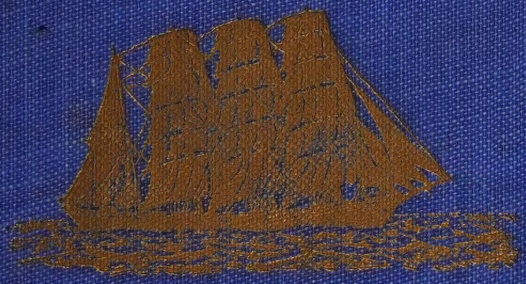
LAST DAYS OF SAIL ON THE WEST COAST

San Francisco Harbor



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WALTER MACARTHUR

Charles R. Patterson

— 1929 —

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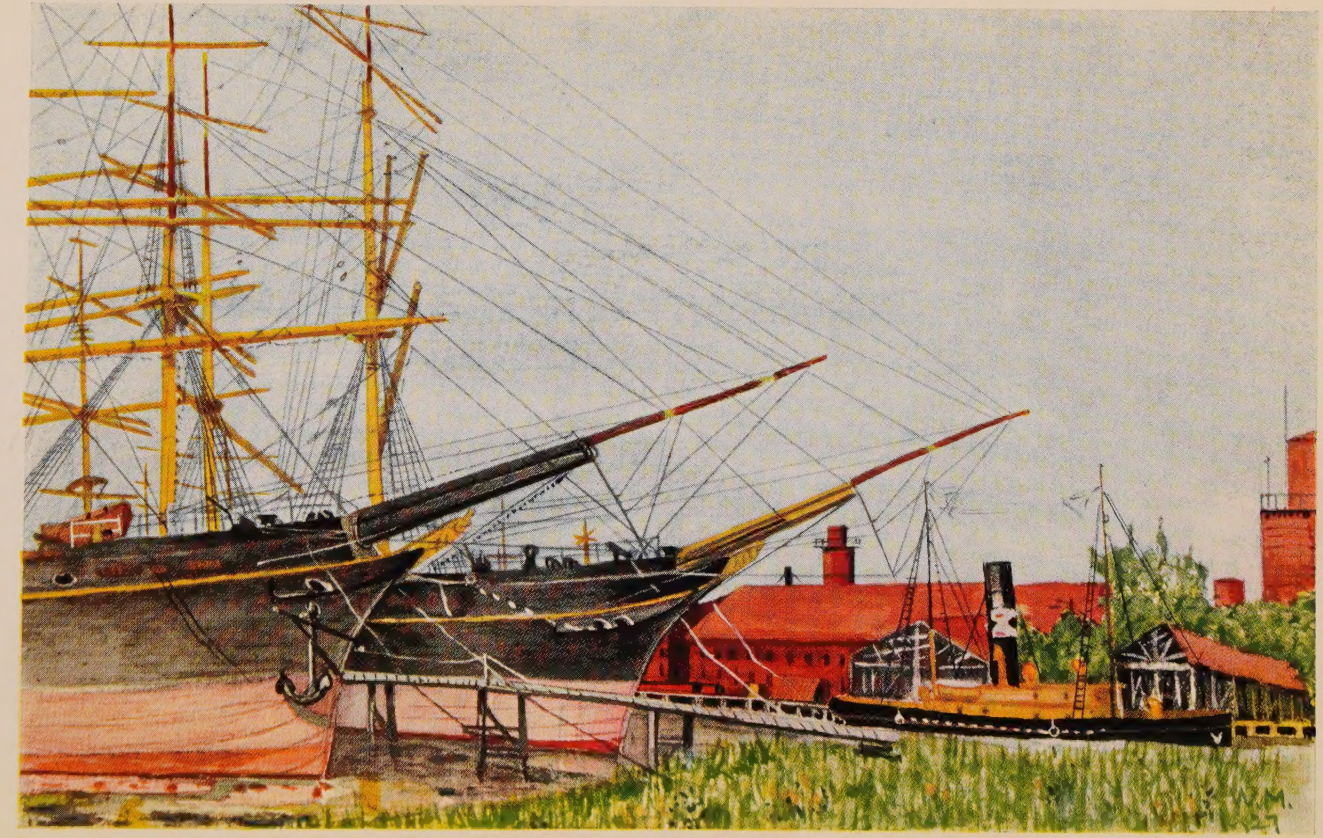

"STAR OF INDIA" "STAR OF FRANCE" "CHILKAT"

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LAST DAYS OF SAIL ON THE WEST COAST

San Francisco Harbor

ILLUSTRATED

WALTER MACARTHUR

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SAN FRANCISCO

PREFACE

The information given in the following pages is compiled from the most authoritative sources and is presented with the object of supplying a correct and detailed record of the particulars regarding the sailing ship at the present time and in the recent past.

It is common knowledge that sail has been entirely superseded by steam on the principal sea routes. But, beyond the fact itself, nothing of a definite nature is known. As in many other instances, "common knowledge" is merely another term for general assumption.

A considerable number of sailing vessels still exist under various flags. These survivors of a past era constitute, so to speak, the exception to the rule, and for this reason possess a special interest for those who follow the subject.

How many sailing vessels are still afloat and in seaworthy condition? In what proportions are they distributed among the maritime nations? What is their present occupation, if any? These and many other questions occur to the mind, but no answer is forthcoming—none, that is to say, that satisfies the desire for "facts and figures."

Seamen and other experts on the subject have each their own fund of information. But the knowledge thus obtainable suffers from the characteristic of all "expert" testimony. In short, our informants disagree and leave us no wiser than before.

Even the highest authorities, unless studied with the greatest care, are apt to prove deceptive. Taken at their face value, the facts obtainable from authoritative sources present a case that is very far from the actual truth.

In recent years, due to the rapidly decreasing numbers of sailing vessels, compilers have followed the practice of lumping all and sundry craft (other than those clearly definable as steam and motor vessels) under the head of "Sail." It follows that the total number of vessels so listed is out of all proportion to the number of actual sailing vessels, properly so called.

The figures here presented have been arrived at by careful analysis of official reports. These figures show the names, tonnage, nationality, and other particulars of all sailing vessels of 1000 tons net and upward at present afloat.

Until recently (say, until twenty-five years ago) the bulk of the commerce between ports on the Pacific and Atlantic oceans was carried by sailing ships traversing the Cape Horn route. San Francisco, especially favored by all the elements that go to make a great seaport, was the center of maritime activity during the period beginning with the "gold rush" of 1849.

Sailing ships of all nations passed through the Golden Gate. Seamen of all races and tongues spread the fame of San Francisco to the four quarters of the globe. In the language of the proverb, every ship brought up in San Francisco Bay at least once during her lifetime!

Following the decline of the Horn trade, many sail-

ing vessels made San Francisco their ultimate home port. Famous under their original names in the seaports of Europe and America, these vessels changed hands, names, and flags. Thus the glory that was London and the grandeur that was New York passed to the great metropolis of the Pacific.

Compared with the numbers and tonnage of sailing vessels registered in the leading seaports of the world, San Francisco is distinguished as the home port of the largest fleet of sail at present in existence.

In the main these vessels represent the highest type of construction. Literally, they are the last word, the final development, in their class. In point of number and tonnage the square-rigged fleet of San Francisco equals the total of such craft owned by four nations, Finland, France, Germany, and the British Empire. The leading features in the history of these vessels are related in the following pages as a matter of interest, both on historical and sentimental grounds, to all seafaring and seaminded readers.

Acknowledgment is made of the valuable assistance rendered by shipowners, shipmasters, seamen, consuls, customs officials, and many others, who by courteous cooperation, often at great sacrifice of time and labor, have aided the author in tracing the past and present whereabouts of many vessels. Especial thanks are due to the officials of the Alaska Packers' Association for unreserved access to the records of the great "Star" fleet; to the publishers of "The Guide" for invaluable aid in consulting the files of that authoritative publica-

tion, and to the officials of the Merchants' Exchange for many privileges granted on the floor and in the archives of that institution.

Throughout the labors attendant upon the preparation of this work the author has been constantly encouraged and supported by the unfailing kindness and lively interest manifested by every person whom he has approached in the search for knowledge. The author can only hope that the results of his study will justify, at least to some extent, the expectations of his friends and co-laborers, and that the facts herein presented may serve to fill a void that otherwise would exist in the history of the last days of sail on the West Coast.

W. M.

San Francisco, 1929.

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DREAM OF THE GOLDEN GATE

When the ships came first through the sunset Golden
Gate of the West to the opal bay,
Bosomed deep in the tranquil olden
Calm of a long past age it lay;
Few were the wares of the trading crew,
The cares and wants of the settlers few;
Few were the hopes stout hearts embolden
To risk the voyage—few cared to stay.

When the ships come now through the mist-wreathed Golden
Gate of the West to the land-locked bay,
Rich are the freights they engulf and fold in
Their deep, dark hulls as they anchor weigh;
Fruits of earth's bosom—corn and wine,
Gold from the depths of the sunless mine,
Choicest of things that are bought and sold in
The marts of the nation—these are they.

When the ships shall come through the fort-flanked Golden
Gate of the West to the wharf-lined bay,
And the great World's Fair of the age be holden
Along its shores in august display,
Then the new City of the Sea
In her high zenith crowned shall be,
And the fame of the Queen of the West extolled in
The songs of the bards of a later day.

—Robert Duncan Milne (1910).

HARBOR OF SAN FRANCISCO

THE harbor of San Francisco occupies a unique position in respect to the characteristics which have determined the establishment and growth of the world's leading seaports.

Situated in latitude 37.48 N., longitude 122.27 W., the city of San Francisco lies almost exactly in the middle of the route that traverses the most populous sections of the earth and over which passes the larger proportion of world commerce.

A line drawn due east and west from San Francisco passes within a short distance south of New York and north of the Straits of Gibraltar, thence through the Mediterranean Sea. Continuing in an easterly direction the line skirts the shores of the Caspian Sea and passes into southern Asia. Westward of San Francisco the line passes through the Japan and Yellow seas, thence to the shores of China.

Considered from the geographical point alone, San Francisco stands preeminent and beyond comparison with any other seaport in the world.

Speaking of certain Mediterranean ports famous in the Middle Ages, the historian informs us that they owed their importance to the fact that they were situated at the very center of the habitable world and were "chosen with a sagacity to which the course of events almost gave the appearance of prescience." These observations may be applied to the harbor of San Francisco with more force

than to any other place distinguished in the history of commerce and travel.

While noting the favorable position of San Francisco on the main route of travel between East and West, a most remarkable fact presents itself, as bearing upon the changes brought about by the opening of the Panama Canal.

At first blush it would appear that the opening of the Panama Canal, by establishing a new sea route between ports on the Atlantic and Pacific oceans, would deprive San Francisco of its advantage as a port on the direct route of travel by diverting the overland traffic, which heretofore has been transhipped at San Francisco for transpacific ports, to the new all-water route. Such assumption would ignore the principle of great circle navigation.

The distance from the Panama Canal to Yokohama over the great circle route is 7,682 miles. The distance from the Canal to San Francisco and thence to Yokohoma over the great circle route from the first-named port is 7,781 miles, or only 99 miles longer than the direct route from the Canal. Including the time occupied in handling cargo, passengers, and mail, the total increase in distance (say, 200 miles) may be covered in less than one day.

The latest records (fiscal year 1927-28) of cargo tonnage passing through the Panama Canal show the extent to which that waterway is now used in transpacific commerce.

Westbound (Atlantic to Pacific) cargo totaled 8,310,134 long tons, of which 65 per cent. originated in the United States and 26 per cent. in Europe.

Four areas absorbed approximately 91 per cent. of this cargo, as follows: West coast of the United States, 40 per cent.; Far East, 21 per cent.; Australasia, 16 per cent.; South America, 14 per cent.

Eastbound (Pacific to Atlantic) cargo totaled 21,320,575 long tons, originating as follows: West coast of the United States, 54 per cent.; west coast of South America, 26 per cent.; west coast of Canada, 13 per cent.; Australasia, 3 per cent.; all other (including Asia), 4 per cent. Of this tonnage 54 per cent. was destined to ports on the east coast of the United States and 37 per cent. was destined to Europe.

Summed up, one-third of the westbound cargo tonnage through the Canal was destined to Asia and Australasia. The eastbound figures of this trade show a much smaller proportion, aggregating about 7 per cent. of the total.

Thus it appears that practically all eastbound transpacific commerce is still conducted through San Francisco and other ports on the West Coast, a large proportion being transhipped at Portland, Seattle, and Vancouver, B. C.

As to the future, it is likely that these ports will continue to serve the commerce between Europe and Asia, both for purposes of transhipment and as ports of call on the all-water route between the East and the West.

The growth of commerce between the countries on both sides of the Pacific Ocean will result in an increasing use of the all-water route by way of the Panama Canal. Viewed in the light of this prospect,

the advantages afforded by San Francisco as a port of call are strikingly evident.

As already noted, that port lies almost directly on the great circle route from the Canal to the Orient and therefore is conveniently situated to serve the needs of the shipping—fueling, provisioning, transhipment of mails and passengers, and so forth—on the long passage from Europe and the Atlantic seaboard of the United States to the ports of China, Japan, and the Philippine Islands.

No gift of prophecy is needed to vision the future of the city by the Golden Gate. The course of events, as indicated by the actual happenings of the present day, affords an indubitable forecast of San Francisco's destiny as the leading seaport on the chief route of world commerce.

In respect to its conveniences for purposes of navigation the harbor of San Francisco is distinguished, and probably unsurpassed, among the seaports of the world.

Opening almost directly upon the sea, through the Golden Gate, it is completely protected by high land on all sides. The area of water enclosed within the harbor lines measures 450 square miles. The Bay is fifty miles long, with an average width of eight miles and a shore line of 300 miles. The mean rate of current is between two and three knots an hour and the mean tidal range is between four and five feet. Fair weather prevails practically all year round.

Two great rivers, the Sacramento and the San Joaquin, flow into San Francisco Bay, each of which

is navigable for a distance of more than 100 miles, through the most productive lands of the State.

Particularly in one respect the history of San Francisco clearly illustrates the rule that the choice, or rather necessity, of any given location for the purposes of shipping is predetermined by the availability of navigable water. Upon this feature alone rests the whole history of the city.

A brief review of the early history of San Francisco will serve to bear out the point here referred to. For this purpose we need go no further back than the period of American occupation—that is, the period immediately preceding the discovery of gold in California.

Except for an occasional visit by the naval vessels of various countries and an annual call by a Russian vessel for supplies for the settlements in Sitka and on the Coast, no shipping had entered the port prior to 1822. In that year a number of whaling vessels put in for supplies and for many years thereafter made the port a base of operations. In the same year a trade in hides and tallow was established with "the States" and England.

These early arrivals selected as the place most suitable for anchorage the bight known as Yerba Buena Cove. As late as 1844 the population in the locality did not exceed fifty persons, most of whom were employed by the Hudson's Bay Company.

In 1847 the population numbered about 500 souls. Of this number one-half were natives of the United States, the remainder being drawn from twenty different countries, while four were born

at sea. Such was the beginning of the city's "cosmopolitan" character!

The discovery of gold in 1848 was immediately followed by a great increase in the shipping of the port. In the summer of 1849 two hundred square-rigged vessels lay at anchor in the Bay. The number of arrivals steadily increased and in 1852 had reached a total of 1,147 arrivals of all kinds during that year.

The vessels which arrived at San Francisco during the first year of the "gold rush" averaged about 500 tons, with a loaded draft of about fifteen feet. In 1850 the average size of the vessels had doubled, and in 1851, with the advent of the "California clipper," had increased to 1800 and 2000 tons, with a draft of 25 and 27 feet.

The first wharf (known as Long Wharf), built on the line of Commercial street, from Montgomery street eastward, was constructed in 1849. Three years later (1852) this work had been extended into the Bay to the high-water depth of 26½ feet, that is, slightly beyond the line of the present East street (Embarcadero). Meanwhile, five additional wharves had been constructed to a high-water depth varying from 22 to 24 feet. These wharves afforded docking facilities to all but the very largest vessels of the period.

Bearing in mind that these wharves extended a distance of more than six blocks (Montgomery to East streets) beyond the high-water mark of the Bay (most of the intervening area having meanwhile been filled in), it will be seen that the first ar-

rivals of deep-water craft anchored within a short distance from the beach. As is well known, many of these vessels grounded and were abandoned, their hulks being ultimately used as storeships, hotels, and other conveniences of the growing city.

The facilities of Yerba Buena Cove were, all things considered, well adapted to the purposes of shipping. Previous to the arrival of the Americans the Mexican Government had resolved to found a town on the shores of the Cove, "as the best site on the Bay of San Francisco for establishing a port."

In this connection it is interesting to note that Lieutenant Ayala, the first seaman to enter the Golden Gate (1775) brought his vessel, the *San Carlos,* to anchor in what is now known as Black Point Cove. Later he reported this to be the best locality for a harbor on the Bay.

This judgment was confirmed by the first American settlers in the vicinity. In 1835 Captain W. A. Richardson, an English seaman, and the first harbor master of the port, raised a tent on a spot (Clay and Dupont streets) adjacent to the landing place of the small vessels operated by him in the coasting trade. In the following year Jacob Primer Leese erected a building in the same vicinity. These two structures constituted the beginnings of the future metropolis.

The selection of Yerba Buena Cove as the place best adapted to the needs of shipping fixed the center of population and commerce of the surrounding country. The advantages of the locality are at once apparent. Lying within a short distance

south of the Golden Gate strait and protected by the easterly curve of the shore line at Clark's Point (Broadway and Battery streets), it afforded both an easy approach and a good lee. The prevailing northerly winds enabled the vessels to approach the anchorage under full sail. The earlier arrivals anchored in about fifteen feet of water and their cargoes were lightered ashore.

By the beginning of 1852 the "water lots" extending eastward from Montgomery to Davis streets and southward from Broadway to Market street had been filled in. At this time the Central or Long Wharf (on the line of Commercial street) and Market Street Wharf extended beyond the line of the present East street (Embarcadero) to the high-water depth of 26 and 24 feet, respectively.

Previous to the advent of the "California clipper," the average size of the vessels arriving at San Francisco had increased from 500 to 1000 tons register, with a draft of 20 feet. Subsequently, a still larger type of vessel entered the port, averaging from 1500 to 1800 tons register, with a draft of 23 feet. The two largest vessels built for the California trade during 1851 *(Challenge* and *Trade Wind)* measured 2006 and 2030 tons, register, with a draft of 27.6 and 25 feet, respectively. With the exception of these two ships, the depth of water at the wharves in 1852 was sufficient to accommodate the largest vessels trading to the port.

To this single circumstance—facility of approach by sea—is due the growth of San Francisco as the center of shipping and commerce on the great Bay. Other circumstances were unfavorable to the choice

of this locality for purposes of permanent settlement. The peninsula itself was barren—a waste of sand relieved only by some clumps of sagebrush and a few rabbits. On the strength of a report made by Federal surveyors the place was pronounced "uninhabitable."

More than one proposal was made to shift the center of population from the shores of Yerba Buena Cove to other localities deemed more desirable for purposes of human habitation. These proposals were not in all instances free from the suspicion of self-interest. It has been said that the name of "Yerba Buena" was conferred upon the new settlement with the ulterior object of belittling its prospects, in order that to some other (and more worthy !) claimant might be reserved the honor of commemorating the great St. Francis.

In pursuance of this design a site at the mouth of Carquinez Strait was declared best adapted to the needs of a great seaport, and formally named "Francisca." Upon recommendation made by a board of engineers a Federal reservation was established in the locality and guns were mounted to command the entrance to the Sacramento River. The sequel to this episode may be read in the crumbling brick and antiquated armament of the arsenal at Benicia.

By an ordinance passed in 1847 the "local name of Yerba Buena, as applied to the settlement or town of San Francisco," was changed and the "name given on the public map" was formally and finally assumed. As the historian has remarked, this step restored to the young city the name by which

the Spanish discoverers had first hailed the "great, good harbor of St. Francis."

The peninsula of San Francisco now contains a population of nearly one million. The supposedly "uninhabitable" dunes are covered with homes, gardens, and orchards. A great city rises upon the hills. The poet's dream of a great World's Fair has been realized and become part of the history of things accomplished. In respect to the volume of its shipping the city ranks with the largest seaports of the nation, its foreign commerce for the year 1928, being valued at approximately four hundred million dollars.

The growth of San Francisco in the past is but an augury of the future. The routes of world commerce converge at her gates and continually enhance the advantage of her position "in the very center of the habitable world."

A RETROSPECTIVE VIEW

LIME JUICE CORNER was the rendezvous of the nautical fraternity in San Francisco during the period of the wheat trade. Here, in the vicinity of consular offices and the Custom House, shipmasters, brokers, and other lights of the maritime world foregathered in the course of business. Incidentally they compared notes on the behaviour of the respective ships, the prospects of the freight market, and other matters of mutual interest.

Conversation covered a wide range and lacked nothing of spirit and variety. During the period of the 90's, however, a marked change came over the tone and theme of discussion. The confab inclined to center on a single topic—the decline of the sailing ship.

On this subject there was no room for argument. Events had followed fast and followed faster until there was no escape from the conclusion that the sailing ship had seen her best days.

One point only remained to be discussed. How long would the sailing ship be able to hold a place on the high seas? The question opened a wide field of speculation among the maritime authorities assembled at "Lime Juice Corner," as in all similar gatherings in the seaports of the world.

The contest between steam and sail, which may be dated from the advent of the *Savannah* (1819), *Sirius* (1838) and *Great Western* (1838), had lasted,

say, fifty years. It had been a stern chase, and a long one. In the end victory perched on the banner of mechanical progress, as typified by the iron hull and the compound engine.

During the earlier part of this period the sailing ship held her own. For many years shipbuilders swore by wind and canvas as the most reliable method of propulsion. The steam engine was an experiment—at best a compromise with sail. Sentiment and conservatism combined to perpetuate the external characteristics of the sailing ship. With the increase of confidence in the marine engine the steamer's rig was changed from ship to bark, and later to schooner.

Clipper bows and top hamper gave way to straight stems and pole masts. Thus the evolution of the steamship marked a complete break with the traditions of sail.

The steamer had become largely independent of wind and weather. In the eyes of the older generation of seafarers she had lost all resemblance to a ship. Sailing ship men held the newcomer in great contempt and characterized her in terms at once apt and forceful. The steamer was "not a ship, but a floating blacksmith's shop." The men who went to sea in such craft were not seamen in the accepted sense of the word. In reality they were seagoing mechanics!

In such manner the masters and men of the sailing ship era relieved their feelings, albeit the consolation thus derived afforded them but cold comfort.

COMPANIONS OF THE HIGH WIND AND THE LONG SEA

The day had passed, if it ever existed, when criticism, ridicule, and even the "demonstrated laws of nature" could halt the march of events, either on sea or land.

No doubt the man who first proposed to make his shallop sail on the wind by merely changing his rig from square sail to fore-and-aft, thus enabling him to board tacks and flatten sheets, was greeted with derision by the "practical minds" of his day.

In every epoch the inventor has been met by the objections of the "practical mind," and always upon the ground of "natural law." Obviously, a vessel dependent upon the elements can not make headway against the wind! It is equally clear that a substance heavier than water must sink; hence the impossibility of the iron ship!

In every instance the power of imagination has triumphed over the assumed limitations of Nature. The "practical" man has lived to witness the achievement of results once deemed impossible.

The beginnings of steam navigation may be dated from the early years of the nineteenth century. The seamen who foregathered at "Lime Juice Corner" represented the generation that linked the old and the new eras of the nautical world. Many of the older members of the fraternity—masters and mates of middle age, with thirty years of service to their credit—had served their time in the days when the art of turning in hemp shrouds was still in vogue and steam navigation was still a rarity and an experiment on the high seas.

These survivors of the old era recounted the tales of their fathers, told with high glee, of the derision, scepticism, and even flat denial, that greeted the appearance of Fulton's *Clermont* and Bell's *Comet*. A vessel might sail against the wind (so the story ran), provided the tide were strong enough, or against the tide, provided the wind were strong enough, but to sail against both wind and tide—the bare idea was dismissed out of hand as beyond all reason!

The children who played on the banks of the Hudson and Clyde in the early years of the nineteenth century declined to be taken in. In the wisdom of their years they rejected the bare thought of a vessel that would sail against wind and tide, as a sheer defiance of the laws of Nature.

Even the seamen of but twenty years' experience had won their spurs in the days when a ship was still a ship. While serving their time they had learned to set studding sails and reeve off lanyards and, on occasion, had performed the maneuvers of clubhauling and careening. The sailing ship was a thing of life, a thing of moods and manners, and the man who would handle her had need be master of his trade.

With the introduction of turnbuckle "lanyards" patent braces, and other products of an inventive age, the art of seamanship underwent almost total eclipse. The marlinespike was superseded by the crowbar and the tar-pot by the white-lead brush. The seaman might, and in fact did, growl to his heart's content. He might, in the exercise of his

immemorial privilege, prophesy all manner of disaster. Seamanship was in a sad decline!

Wire rigging was bad enough, but rigging set up with turnbuckles could not be cut away in case of necessity. Consequently a ship, once thrown on her beam-ends, was doomed. And so on to the end of the direful chapter.

Seafaring had ever been a hazardous business, but the seaman might take his life in his hands with a fair chance of survival. Nowadays—that is, in the latter part of the nineteenth century—even the best seaman in the world was a mere pawn in the hands of Fate. The act of signing shipping articles was the next thing to signing one's death warrant!

The seaman's life is a short, if not exactly a merry one. The generation that witnessed the introduction of the mechanical improvements in the equipment of the sailing ship passed from the scene, leaving but few survivors of the old order. These ancients—patriarchs of fifty years or thereabout—had eaten the pudding and proved its worth. That is to say, they had tested the newfangled contrivances and had found them good, at any rate good enough for all practical purposes.

They had lived to witness the change in the general type of vessel, from the full-rigged ship of 1200 to 1600 tons to the four-masted ship of 2000 tons, and later the four-masted bark of 2500 to 3000 tons, each with a carrying capacity one-half greater than the registered tonnage.

The four-master of large carrying capacity was

the shipbuilder's answer to the challenge of the tramp steamer. The sailing ship had been ousted from the more profitable trade routes, but charters for coal, wheat, jute, nitrates and other staples of commerce might still be had for the seeking.

The vessels built for this trade were laid down on lines dictated by considerations of utility, rather than of grace or speed. The concave bow, the fine run, and the marked dead rise that distinguished the earlier type of sailing ship were substituted by models of fuller, not to say flatter proportions.

The seaman, with his characteristic turn for expressive phrase, described the new type of vessel as "built by the mile, cut in lengths, and joined at both ends." Notwithstanding the departure from esthetic standards which was forced upon the shipbuilder by the demand for larger carrying capacity, it remains to be said that the latest examples of construction preserved in the main that symmetry of line and sheer that had distinguished the finer models of the past.

To the very last the sailing ship continued to be an object of admiration, combining with the traditional graces of form the modifications imposed upon the designer by the necessities of the case.

Considerations of economy led to retrenchment in many particulars. Teakwood deck fittings, brasswork, and everything in the nature of "gingerbread" were discarded. The figurehead and gilded scrollwork no longer lured the eye and gave the fabric a touch of artistic finish. Ornamentation of any kind became taboo, and plainness, even to the point of severity, became the prevailing rule.

The necessity for economy in the operation of the sailing ship was further evidenced in a marked reduction of the sail area. Studding sails, skysails and other "kites" went the way of the ringtail, the bonnet, and the jimmy green. In some instances even the royals were discarded and the "stump topgallant mast," or "baldhead," represented the extreme of the new mode—the "parish rig," as it was derisively called.

Of course, the manning scale was reduced in proportion, and sometimes out of proportion, to the reduced spread of canvas. The rule of one able-seaman to each 100 tons, which had prevailed in the interval following the era of the clipper ship, was reduced one-half, or more.

For a time the sailing ship maintained the contest with the steamship, but the scale had been turned against her and the balance tended more and more in favor of the newcomer.

The economies practiced in the construction, equipment, and operation of the sailing ship might in a measure offset the expense of engines and fuel. But all such considerations were outweighed by a single factor, namely, the running time from port to port. In this respect the advantage was all with the steamer. Generally speaking, a comparison between the steamer and the sailing ship in respect of time occupied on a given voyage, and therefore of carrying capacity, was as three to one in favor of the former.

The case had reached this point in the last decade of the nineteenth century (say, thirty years ago)

and the seamen of that day were forced to admit the facts. In their view the future held but one prospect, dim and nebulous as it might be.

The day of the sailing ship might at least be prolonged by "putting an engine in her," thus combining the advantages of steam and sail. The prospect of a "hermaphrodite" ship was not particularly pleasing to the master mariner and his mates, second mates, and apprentices. Still, it offered a chance of survival in the calling to which they had devoted the best years of their lives. At any rate, it was a talking point and afforded a variation of the otherwise hopeless tone of conversation among the seamen who gathered at "Lime Juice Corner" and elsewhere throughout the maritime world.

Lacking this or some other method of rejuvenation the actual end of the sailing ship could be seen by the naked eye. In such event the older generation would find themselves completely stranded, dependent for a livelihood upon the chance of employment in some humble calling alongshore. The younger members of the tribe, albeit they had reached the top of the ladder in sail, would have to "go into steam" and be thankful for a berth on the much-despised tramp.

* * * *

In the intervening period the expected has happened. Indeed, the sailing ship disappeared even while the wiseacres were still prophesying the event.

With the exception of a few sailing vessels built for the Chilean nitrate trade, the building of full-

rigged ships and four-masted barks came to an end in 1902.

Within a period of ten years (1900-1910) the "forest of masts," once a familiar sight in every seaport, was denuded and only a few stumps remained to mark the close of a great era. In the greater number of instances the relics of that era were either laid up, awaiting their fate at the hands of the shipbreaker, or eking out an existence as hulks and barges.

The long contest between sail and steam came to an end with startling suddenness. The outcome of the struggle had never been in doubt; nevertheless the complete disappearance of the sailing ship from the main routes of overseas trade occurred, as we may say, without warning.

To the very last a great number of sailing ships of the first class remained afloat. The figures of numbers and tonnage still made an impressive, if somewhat deceptive showing. Even the figures of the present day are apt to deceive the unwary reader.

Upon analysis of the statistics it appears that the figures of sail tonnage are increased far beyond the actual numbers by embracing many vessels of various types—barges, floats, dredges, etc. The results thus arrived at, if taken at their face value, are far wide of the actual conditions.

Exception may also be taken to the inclusion in such lists of vessels between 100 and 1000 tons. Vessels under the latter tonnage can not be said

to constitute a factor in any account of the sailing ship in overseas commerce.

By confining our study to vessels of 1000 tons net and upward we may hope to arrive at a result approaching exactitude. The actual figures of numbers and tonnage of sailing vessels at present in existence tell the whole tale, and he who runs may read.

WORLD TOTAL OF SAILING SHIPS

THE rapid decline of the sailing ship is clearly shown by Lloyd's Register. In 1891 sailing vessels constituted approximately 60 per cent. of numbers and 40 per cent. of tonnage of the world's shipping. During the following decade the proportions declined to 43 and 23 per cent., respectively. The decrease of sail tonnage has since continued at the rate of 50 per cent. during each ten-year period.

The number and tonnage of sailing vessels at present in existence throughout the world, in comparison with the total of all classes of shipping, is shown by the following table, compiled from Lloyd's Register, 1928-29:

TABLE 1

WORLD SHIPPING (100 TONS GROSS AND UPWARD)

LLOYD'S REGISTER, 1928-29

	STEAM AND MOTOR		SAIL		TOTAL	
	NO.	TONS GROSS	NO.	TONS GROSS	NO.	TONS GROSS
British Empire	9,840	22,504,176	843	278,397	10,683	22,782,573
United States	3,653	13,702,825	782	930,577	4,435	14,633,402
Other Countries	15,894	28,952,412	1,396	586,272	17,290	29,538,684
World Total	29,387	65,159,413	3,021	1,795,246	32,408	66,954,659

The proportions of sail to steam and motor vessels are 9 per cent. of numbers and 2.5 per cent. of tonnage. Sailing vessels under American registry constitute 26 per cent. of numbers and 51 per cent. of tonnage of the world total of sail. The number of sail craft under British registry con-

stitutes 28 per cent. of numbers and 15 per cent. of tonnage of the world total of sail.

Compared with the respective national totals of all classes of shipping, American sailing vessels represent 17 per cent. of numbers and 6 per cent. of tonnage, while the British proportions are 8 per cent. of numbers and 1 per cent. of tonnage.

Compared with the world total of all classes of shipping (approximately thirty-two thousand vessels, of sixty-seven million tons), American sailing vessels represent 2.5 per cent. of numbers and 1.5 per cent. of tonnage, while the British proportions are 2.5 and 0.4, respectively.

More than one-half of the sail tonnage at present afloat is under American registry. The remainder is owned by Finland, France, Germany, the British Empire, and fifteen other countries.

Although the numbers of American and British sailing vessels are approximately equal, the figures of tonnage show a wide difference, due to the larger tonnage of the American vessels (say, 1500 tons), including a large number of "fore-and-afters" of 2000 and 3000 tons each, most of which are engaged in the Atlantic coastwise trade. The figures of American tonnage also include a number of "schooner-barges" of 4000 and 5000 tons employed on the Great Lakes. These vessels are equipped with masts and sails, but are commonly handled in tow.

It will be noted that the foregoing figures are compiled on the basis of 100 tons gross. Vessels measuring from 100 to 1000 tons gross constitute more than nine-tenths of the total. Further, the list of sail vessels, so called, includes a large num-

ber of barges, floats, dredges, auxiliary-screws, and other craft of a miscellaneous character. Together, these classes constitute four-fifths of the nominal sail tonnage. As a result of this method of computation the figures presented by Lloyd's greatly exceed the actual numbers of sailing vessels, considered in relation to the numbers still afloat and engaged in the overseas trade.

In order to arrive at a correct estimate of the numbers and tonnage of actual sailing vessels, the following figures have been compiled on the basis of 1000 tons net:

TABLE 2

DISTRIBUTION OF WORLD'S SAIL FLEET
(1000 TONS NET AND UPWARD)

NATION	No. OF VESSELS	TONS NET
United States	129	216,065
Finland	18	32,888
France	16	31,781
Germany	12	28,808
British Empire	6	13,351
Peru	6	9,925
Italy	5	7,484
Chile	4	5,741
Brazil	4	4,800
Norway	3	4,444
Sweden	2	3,766
Spain	2	3,312
Denmark	1	2,665
Russia	1	2,129
Belgium	1	2,074
Cuba	1	1,698
Argentina	1	1,239
Uruguay	1	1,061
Portugal	1	1,057
Unnamed	1	1,361

Estimated on the basis above outlined, the total number of sailing vessels still afloat is 215, of 366,602 tons net. Of this number 129 vessels, of 216,065 tons net (i. e. 60 per cent. of the total number and tonnage) are under American registry. Sail tonnage under American registry includes fifty square-rigged vessels. Of these forty-five hail from San Francisco, comprising a total net tonnage of 95,051. Included in this number are twenty-two vessels of British construction.

THE LAST DAYS OF SAIL

THE sailing ship era closed suddenly, while experienced observers of maritime events were still predicting the event. Despite the progress of the steamship, the older type of vessel continued to hold the lead on the longer routes of ocean commerce, and until near the end of the last century maintained an equality of numbers and tonnage in the lists of world shipping.

During the 90's the proverbial "forest of masts" was still a familiar sight in many ports. Almost at the moment of her highest development the sailing ship disappeared from the high seas. Without warning, so far as the ordinary observer could note, the sailing ship passed from the scene and the great harbors of the world were deserted, save for the appearance of a few steamers, each with a capacity three times greater than her predecessor.

In the first ten years of the present century the sail tonnage of the world decreased by more than one-third. In the same period British sail tonnage decreased by more than one-half. These losses occurred chiefly among the larger class of vessels engaged in the overseas trade and marked the final passing of that type. A brief review of the leading events in the closing years of the sailing ship era will aid in an understanding of the subject.

The contest between steam and sail began with the general use in ocean-going vessels of the new

motive power (say in the middle of the nineteenth century), and lasted for fifty years.

During the earlier period of steam navigation, and indeed until near the end of the century, the steamship retained many characteristics of the older craft, due partly to sentiment and partly to practical considerations. Men of little more than middle age can recall the day of the full-rigged steamer and follow the progress of evolution from square sails to fore-and-aft rig, culminating during the latter 80's in the abandonment of all top hamper and the introduction of pole masts, twin screws, and other characteristics of the modern steamship.

Although nearly forty years have passed since the advent of the first steamship designed to run under "bare poles" (i. e., entirely independent of sail), the memory of that event vividly recalls the final break with the traditions of sail and the final triumph of steam as an independent motive power.

For many years following the beginning of steam navigation on the principal ocean routes the sailing ship continued to carry the great bulk of the world's commerce, and in fact reached her highest development in competition with the steamship. Improvements in construction enabled the famous packet and clipper ships to outsail the paddle-wheel steamers of their day, and many years elapsed before the sailing ship records were permanently lowered.

The tea-clipper era, which was inaugurated by American ships, followed some years later by the British clippers, began in the early 40's and lasted for nearly thirty years. In the 60's several events

"STAR OF FRANCE" "STAR OF ENGLAND" "STAR OF GREENLAND"

PEERS OF THE PROUDEST IN THEIR DAY

occurred which decisively favored the steamship. The screw propeller and the compound engine came into general use. Iron superseded wood in the construction of ships.

The year 1869 was marked by two events calculated materially to hasten the end of the sailing ship era. In that year the Suez Canal was opened and the transcontinental railroad between New York and San Francisco was completed.

In each instance a new and shorter route was opened between widely separated localities. The trade in staple commodities, which formerly had followed the long routes around the Cape of Good Hope and Cape Horn, was gradually diverted to the shorter routes from Europe to the Orient and from the Atlantic to the Pacific.

Within ten years the China clipper was driven from the tea trade and forced to seek less lucrative employment in the trade to India and the Antipodes, where she survived with some distinction until the middle 90's. During this period a number of these vessels arrived at San Francisco (the focal point of the world's shipping) and loaded wheat for ports in Europe.

The general state of the sailing ship at this time may be seen by reference to the figures of tonnage. In 1870 the ratio of sail to steam tonnage was more than four to one. The opening of the Suez Canal coincides with the decline in the relative proportions of steam and sail tonnage.

Nevertheless, in the middle 80's the world tonnage of sail still equaled that of steam. At this period the decline of the sailing ship was checked

by a large increase of sail tonnage under French registry.

Favored by the Subsidy law of 1881, the French tonnage of sailing vessels increased materially and reached its highest point in 1906, with a total of 487,458 tons gross. During the period 1894-1914 French sail tonnage increased more than one hundred per cent. In the same period British sail tonnage decreased more than eighty per cent.

Until within the last four years the sail tonnage of France had remained equal to the figure established thirty years previously. In the interim the greater part of this tonnage has been sold and scrapped, leaving less than 32,000 tons net still on the French register.

A number of circumstances combined to prolong the usefulness of the sailing ship on the Pacific Ocean.

The rapid development of the States on the Pacific Coast and the extensive cultivation of wheat created a demand for sail tonnage. Sailing ships arrived from European and Atlantic ports with general cargoes and sailed homeward with wheat. As time passed and methods of cultivation were improved export cargoes became more varied, but wheat (and latterly barley) continued to be the chief item on the bills of lading.

The commerce with other countries was conducted chiefly in foreign bottoms, principally of British nationality. American ships participated to a considerable extent in the trade to the United Kingdom and Continent. In addition they enjoyed

a monopoly of the trade between the Atlantic and Pacific ports of the United States.

The latter trade afforded employment to a large fleet of vessels, among them many survivors of the type built between 1850 and 1860, known as "California clippers."

With the increase of railroad facilities and the establishment of steamship lines, first by way of the Magellan Straits and later by the Isthmus of Tehuantepec (1907), the number of sailing vessels employed on the Horn route rapidly decreased. Practically speaking, the existence of the American sailing ship on the Horn route ended in 1900.

For some time prior to this date the number of American ships sailing from Pacific Coast ports by way of Cape Horn averaged fifty each year. During the decade 1890-1900 the number of such sailings did not exceed twenty-five annually. Within the next five years (that is, in 1905) the American sailing ship had entirely disappeared from the Horn route.

Thereafter, during a number of years, the departure of an American vessel bound east around the Horn was a very rare event. The last incident of the kind occurred in 1920, in which year the ship *Marion Chilcott* (ex *Kilbrannan*) sailed from San Francisco for Amsterdam.

During the decade, 1884-94, the total American sail tonnage decreased to the extent of 16 per cent., while the proportion of such tonnage registered for the foreign trade decreased to the extent of 35 per cent. During this period the building of wooden

ships for the overseas trade came to a close. The ship *Aryan,* built at Phippsburg, Me., in 1893, was the last full-rigged ship built of wood in an American yard, and probably the last of her kind built in any part of the world. The *Aryan* sailed on her last voyage from San Francisco to Wellington, N. Z., in July, 1918, and was burned at sea on December 24 of that year, with the loss of eight lives.

The same period witnessed the building of the first iron sailing vessels of American construction. In 1883 the iron ships *Tillie E. Starbuck* and *T. F. Oakes* were built, the former at Chester, Pa., and the latter at Philadelphia, Pa. In 1884 the iron ship *Clarence S. Bement* was built at Philadelphia, Pa.

The *T. F. Oakes* (renamed *New York*) was stranded in the vicinity of San Francisco in 1901. The *Clarence S. Bement* was burned at sea in 1904, while on the passage from Newport News, Va., to San Francisco. The *Tillie E. Starbuck* was dismasted and abandoned (August 16, 1907), while on the passage from New York to Honolulu. Her crew were picked up by the British ship *Cambuskenneth* and landed at Coquimbo, Chile.

The use of iron in shipbuilding was discontinued in the early 90's and steel became the common material of construction. Between 1894 and 1902 nine steel sailing ships were built in American yards. The first vessel of this class, the *Dirigo,* was built at Bath, Me., in 1894. The hull plates of this vessel were imported from Great Britain. As an evidence of the rapid expansion of the American steel industry it is to be noted that within the following ten years steel shipbuilding material was exported by

American manufacturers for the construction of vessels in British shipyards.

The other steel ships built in American yards were named as follows: *Arthur Sewall, Edward Sewall, Kaiulani,* and *Erskine M. Phelps* (built at Bath, Me., 1898); *Astral* (built at Bath, Me., 1900); *Acme* and *William P. Frye* (built at Bath, Me., 1901); *Atlas* (built at Bath, Me., 1902). The *Atlas* (renamed *Star of Lapland*), is the last full-rigged ship built in the United States.

Four of these vessels are still in service, under the flag of the Alaska Packers' Association, of San Francisco. The *Dirigo* and *William P. Frye* were sunk by enemy action during the War. The *Acme* was lost in the Japan Sea in 1918. The *Erskine M. Phelps* is in use as a tow-barge on the Pacific Coast. The *Arthur Sewall* was lost with all hands on the passage from Philadelphia to Seattle, in 1907.

During the period under review an extensive trade developed between Pacific Coast ports and the countries bordering upon the Pacific and Indian oceans.

This trade was conducted wholly in American bottoms. Many sailing ships which formerly had been engaged in the Horn trade were chartered for Australia, East Africa, the Philippine Islands, and Siberia. A large commerce was carried on between San Francisco and the Hawaiian Islands and South Sea ports.

As the coastwise trade increased many sailing ships were regularly employed in carrying coal from Washington and British Columbia. The Southern California "boom" in the latter 80's brought many

former deep water vessels into the lumber trade from North Pacific ports to San Pedro and San Diego.

During the 80's and 90's the coal trade between ports in Washington and British Columbia and ports in California and Hawaii constituted a leading feature of commerce on the Pacific Coast. The "black diamond" was still the sole form of fuel for most purposes. Oil had not yet been developed in California; consequently that State was entirely dependent upon imports of coal.

The vessels employed in the coal trade sailed north in ballast. The passage to Cape Flattery was usually made against a head wind and occupied about fifteen or twenty days. The passage south was frequently made in about seven or ten days. The average voyage occupied a month.

The vessels engaged in this commerce were exclusively American-built craft, most of them having formerly been in the Horn trade. They were well found and well manned. As a rule they made the passage from dock to dock under canvas. The spectacle of a ship under full sail passing up the Bay was an almost daily event in the life of San Francisco.

The men who owned these vessels were among the most familiar figures on the waterfront and on 'Change. Among the many names included in this list may be mentioned, Samuel Blair, Robert Dunsmuir, George Fitch, John Rosenfeld's Sons, P. B. Cornwall, Mighells & Boudrow, Eschen & Minor, and R. D. Chandler.

The pioneers of the coastwise trade include the

owners of the lumber carriers, notably Preston & McKinnon, Dolbeer & Carson, Hansen & Co., Simpson Mill Co., Pope and Talbot, and Renton, Holmes & Co. The Hawaiian sugar trade contributed its quota to the list of sailing vessels, owned chiefly by Williams, Dimond & Co., Welch & Co., and John D. Spreckels.

In all, about fifty sailing vessels were engaged in these trades during a period of, say, twenty-five years, until displaced by steamers. Thereafter, a few of the survivors remained in service as barges. Probably the most interesting case of the latter kind is that of the ship *Dashing Wave*. This vessel, built at Portsmouth, N. H., in 1853, was for many years engaged in the lumber trade on the Pacific Coast. Later she was converted into a barge, in which capacity she survived until stranded on Shelter Point, Vancouver Island, on March 16, 1920. Thus closed an active life of sixty-seven years.

The Klondike "gold rush" of 1897 created a lively demand for vessels in the trade between ports on the Pacific Coast and Alaska. Many sailing vessels entered this trade, carrying passengers and cargo to Nome, St. Michaels, and other ports within striking distance of the Yukon River. In a small way the circumstances resembled those of the "days of '49."

The demand for vessels was not restricted by any requirements as to size or age. Even the question of seaworthiness was regarded as merely incidental. Provided only that the vessel could be depended upon to keep afloat while getting ready for sea, the adventurous Klondikers were entirely willing to

take chances of reaching their destination. After all, the whole business was a gamble!

With a few exceptions, the vessels employed in the Klondike trade were small craft which had outlived their usefulness in the coastwise trade, ranging in age from thirty to forty, and in some instances to nearly fifty years. Many of these veterans had for years been out of commission, with little or no prospect of future employment. Barring one chance in a thousand, they were doomed to end their days in the mud of Oakland Creek—saved from the shipbreaker only by the fact that they were worthless even as scrap.

The Klondike boom afforded the one chance in the case. In at least one respect these vessels were well adapted to their new vocation. They could be bought for the proverbial song. Even so, many of them realized prices far beyond their value for ordinary purposes. In some instances vessels which were bought for a few hundred dollars changed hands at a price ten times larger than the original figure.

Numerous companies were organized for the purpose of purchasing the vessels. Given a few repairs and a coat of paint, the old hookers were ready for sea. Loaded to the guards with supplies and manned by crews themselves inspired by the lure of gold, they were sent on their way to the accompaniment of cheering crowds. For the first time in years they "felt the thrill of life along their keels," as they passed through the Golden Gate, and the experience proved to be more than some of them could survive.

Many of these adventurers never returned to their home port. At least twelve "gold ships" were wrecked on the coast of Alaska during the first year of the Klondike boom, accompanied in some instances by serious loss of life. Probably the worst of such disasters was the wreck of the bark *Helen W. Almy.*

This vessel was built at Fairhaven, Mass., in 1859, and registered 299 tons. Condemned as unseaworthy and uninsurable, she had been laid up during several years, and finally was purchased by a group of Klondikers.

On May 21, 1898, the *Helen W. Almy* sailed from San Francisco under command of Captain Hogan. In addition to a scratch crew of thirteen, mostly landsmen, she carried twenty-seven passengers, or forty-one souls, all told.

On the following day she was reported wrecked in the vicinity of Point Bonita, at the entrance to the Golden Gate. Upon investigation it was discovered that the wreckage was anchored. Thus it was evident that she had gone to pieces as a result of her first encounter with the Pacific swell and before she had actually cleared the harbor. No trace was ever found of any person on board. The conclusion is that the vessel foundered suddenly and before a boat could be launched.

Many Klondike parties were organized in New York, Boston, and other Atlantic Coast ports. It was estimated that during 1898 more than thirty vessels were placed on the route to Alaskan ports by way of Cape Horn These vessels were small schooners, averaging about 100 tons net and about

twenty-five or thirty years old. In most instances the passage from the Altantic Coast to San Francisco averaged from 150 to 180 days. One such craft, the schooner *Atlanta,* 50 tons net, built at Gloucester, Mass., in 1843, was wrecked on the passage. Several other craft of the same type were lost and passengers and crew drowned.

The Spanish-American War (1898) created a demand for merchant vessels to serve as transports. Among the vessels employed by the Government was the ship *Tacoma.* This vessel embarked horses and mules at San Francisco and sailed for Manila, P. I., August 6, 1898. She completed the voyage and upon return to the Pacific Coast was taken over by the Alaska Packers' Association. During the next twenty years the *Tacoma* was employed in the Alaska salmon fisheries. The particulars of her loss in the ice are elsewhere related.

The Alaskan fisheries were the last resort of the sailing ship. When all other avenues of employment had been closed to them, the survivors of the great Horn fleet eked out their last days in the fishing trade. Except for an occasional charter in the lumber trade to Australia or South America, the Alaskan fisheries afford the sole employment of the sailing ship on the West Coast.

At the present writing only five sailing vessels are at sea on voyages to or from Pacific Coast ports. Fifty-two sailing vessels have been laid up at San Francisco, Portland, and Seattle, during the past five years or more.

ALASKA PACKERS' "STAR" FLEET

APPROXIMATELY 150 sailing vessels (exclusive of barges) are registered on the Pacific Coast. The larger proportion of these vessels are owned by companies engaged in the Alaskan salmon fisheries. In this class are included a number of American wooden ships formerly engaged in the deep-water trade around the Horn, and now owned by companies in Seattle and other North Pacific ports.

The largest fleet engaged in the salmon fisheries is owned by the Alaska Packers' Association, of San Francisco. This firm was incorporated in 1893, and inaugurated its sail fleet with the ship *George Skofield*. In the following year it operated twenty-six sailing vessels. Thereafter for many years an average of thirty vessels were annually dispatched to the fishing grounds. Of the total number of vessels thus employed thirty-two were owned by the Packers, the remainder being operated under charter.

The number of sailing ships owned by the Packers has been greatly reduced during the past few years by the sale of certain vessels and the substitution of steamers. At the present time the fleet numbers eleven square-rigged vessels, aggregating 23,195 tons net, thus constituting the largest fleet of the kind under a single ownership in any part of the world.

Included in the Packers' fleet are seven vessels of

British construction. The following table presents a complete list of the square-rigged vessels at present owned by the Alaska Packers' Association:

TABLE 3

ALASKA PACKERS' FLEET

PRESENT NAME	FORMER NAME	BUILT	YEAR
Star of Alaska	Balclutha	Glasgow	1886
Star of England	Abby Palmer Blairmore	Dumbarton	1893
Star of Finland	Kaiulani	Bath, Me.	1899
Star of France		Belfast	1877
Star of Greenland	Hawaiian Isles	Glasgow	1892
Star of Holland	Homeward Bound Otto Gildemeister Zemindar	Belfast	1885
Star of Iceland	Willscott	Pt. Glasgow	1896
Star of Lapland	Atlas	Bath, Me.	1902
Star of Scotland	Kenilworth	Pt. Glasgow	1887
Star of Shetland	Edward Sewall	Bath, Me.	1899
Star of Zealand	Astral	Bath, Me.	1900

Two of the American-built vessels in the Packers' fleet, *Star of Lapland* and *Star of Zealand,* were built to the order of the Standard Oil Company for the case-oil trade to the Orient. Another vessel of the same class, *Star of Poland,* ex *Acme,* formerly owned by the Alaska Packers' Association, was wrecked on Katsura Island, in the Japan Sea, in 1918, while under orders of the United States Government.

The two other American-built vessels in the Packers' fleet, *Star of Shetland* and *Star of Finland,* were built to the order of A. Sewall & Co., for round-the-Horn trade. These four ships represent the highest type of American steel ship construction and are the only vessels of their class still afloat.

* Sold to Swedish and renamed ASKAIAN KYOBERG (1930)

** Sold to Japs for scrap, 1926

"STAR OF SHETLAND" "STAR OF INDIA" "STAR OF FRANCE"

BEAUTY AND STRENGTH COMBINE TO CHARM

Until recently the Packers' fleet included four "Stars," formerly of the Corry line, built at Belfast for the East Indian trade, namely, *Star of Russia, Star of France, Star of Italy* and *Star of Bengal.* The *Star of Russia* and *Star of Italy* were sold within the past two years for use as storeships, the former (renamed *La Perouse*) in the New Hebrides and the latter at San Buenaventura, Colombia. The *Star of Bengal* was wrecked on Coronation Island, Alaska, in 1908. The *Star of France* is still on the active list under the Packers' flag.

Within the recent past the Packers have sold three former British ships, namely, *Star of Peru,* ex *Himalaya* (renamed *Bougainville*), built at Sunderland, 1863; *Star of Chile,* ex *Coalinga,* ex *La Escocesa,* built at Dundee, 1868, and *Star of India,* ex *Euterpe,* built at Ramsey, I. O. M., 1863. The *Star of Peru* now keeps company with the *Star of Russia* in the South Sea Islands. The *Star of Chile* (renamed *Roche Harbor Lime Transport*) is employed as a tow-barge on the Pacific Coast.

A more dignified end has been reserved for the *Star of India.* This famous old ship, originally owned by the Shaw, Savill & Albion Co., of London, and for many years engaged in the New Zealand trade, was purchased by the Zoological Society of San Diego, Calif., and is maintained at that port as a marine museum. Under her original name and restored to her full rig, the *Euterpe* will serve as a memorial of the sailing ship in her best days.

In 1925 and 1926 the Packers disposed of four American-built wooden ships, namely, *Bohemia, Indiana, Llewellyn J. Morse* (recently burned), and

Santa Clara, thus removing from the active list the last vessels of their class in the Packers' fleet. These vessels were bought by moving-picture companies for use in the production of marine dramas. Being built of wood, they are well adapted to their new role as "frigates" and "caravels." Romance, if only of a counterfeited kind, has attended them to the end of their days.

In 1926 the Packers placed in commission the steamer *Arctic.* In 1927 another steamer, the *Bering,* was added to the fleet. Each of these vessels makes two voyages during the fishing season, thus displacing nine sailing vessels. During the past year the steamer *Lurline* has been added to the fleet.

Last spring (1928) only five "Stars" were sent to the fishing grounds, namely, *Star of Alaska, Star of Falkland, Star of England, Star of Holland,* and *Star of Zealand.* The *Star of Falkland* (successively named *Northern Light, Arapahoe, Steinbek, Durbridge*), built at Port Glasgow, 1892, went ashore at the mouth of the Unimak Pass and became a total loss, but without loss of life. Notwithstanding the use of steam vessels in the salmon fisheries it is likely that a number of sailing vessels will continue in that trade indefinitely.

The annual departure and arrival of the Packers' fleet is an occasion of great interest to the maritime community of San Francisco. For several weeks in the spring and fall the waters of the Bay assume an aspect that is reminiscent of an earlier day, when the sailing ship predominated in the characteristics of the port.

In the spring these survivors of the "brave days of sail" break moorings in Oakland Creek and go into drydock, after which they load supplies for the canneries, including tin plate, box-shooks, and every other kind of material used in packing the season's catch.

The passage to the fishing grounds, a distance of about 2,500 miles, is usually made in twenty-five or thirty days. Arrived at the scene of operations, the fishermen and supplies are landed and all preparations made to receive the fish, which usually begin to "run" in the early part of July. The "run"—that is, the period during which actual fishing may be carried on—lasts for two or three weeks. At the close of the season the catch (cooked, canned, labeled, and packed ready for the market) is loaded on the ships. With anchors aweigh and all sail set the vessels put to sea, homeward bound.

Then begins a race for the honors of the fastest passage to San Francisco. Commanded by good seamen, themselves among the last survivors of the sail era, the old ships are put on their mettle. Needless to say, no sailing records are broken. Nevertheless, the vessels make the most of the winds that prevail and render a fairly good account of themselves.

Within twenty days the leaders of the fleet heave in sight of the Golden Gate. Cargoes are discharged, the larger part being transhipped direct on freight cars for conveyance overland and on steamships bound to ports in Europe. After being cleaned and fumigated the vessels are returned to

winter quarters and overhauled in preparation for the next voyage to the North.

To the credit of their present owners, it is to be noted that these vessels show no sign of neglect. On the contrary, they are well looked after, still "A1 at Lloyd's," and perfectly seaworthy in every sense of the word.

The Alaska Packers' Association maintains a fully equipped dockyard, probably the largest establishment of the kind still in existence. The officials and shipmasters of the Association take a keen personal interest in the vessels and in all respects fully maintain the best traditions of the sailing ship days.

FORMER BRITISH VESSELS

THE list of square-rigged craft owned in San Francisco includes nine Clyde-built ships, of 24,567 tons net, formerly owned in Germany and used in the nitrate trade. Upon the outbreak of the Great War these vessels took refuge in Guaymas and Santa Rosalia, Mex., where they were interned. In 1920 and 1922 they were sold by the Reparations Committee to the Robert Dollar Company, of San Francisco. They were towed to the latter port, where they were reconditioned, and seven of them were renamed after members of the Dollar family. Four of these vessels have made one voyage in the transpacific trade under the management of the Dollar company. The purchase of these ex-German ships included the ship *Wandsbek,* ex *Ancyra* (built at Greenock, 1892), but she drifted ashore at Santa Rosalia and became a total wreck. Seven other German sailing ships were seized during the war. Four of these vessels are still on the American register, making a total of twelve such vessels now under the American flag.

By an Act of Congress passed in 1900, following the annexation of the Hawaiian Islands, all vessels which on August 12, 1898, were under Hawaiian registry and owned by citizens of the United States or Hawaii were admitted to American registry. This measure embraced all but two of the foreign-built vessels subsequently bought by the Alaska Packers' Association, namely, the *Star of Holland,*

ex *Zemindar,* etc., and the *Star of Falkland,* ex *Durbridge,* etc., latterly under German registry. The first-named vessel secured American registry as a repaired wreck, and the latter was seized during the War.

Under the terms of the Act of 1900 twenty foreign-built sail vessels, of 25,000 tons gross, were transferred from Hawaiian to American registry, of which number twelve are still in existence. Among the latter are three "Stars" still in the Alaska Packers' fleet and seven other vessels, as follows: *John Ena* (erroneously reported lost), *Falls of Clyde, Hai Hong* (ex *Progreso,* ex *Nuuanu,* ex *Highland Glen*), *Diamond Head, Star of India, Star of Italy,* and *Star of Chile.* The recent history of these three "Stars" is recounted elsewhere in these pages. The movements of the other vessels may be briefly described.

The *John Ena* arrived at San Francisco in 1926 in tow from New York. During the passage she encountered a heavy gale and was almost entirely dismasted. She was sold to a local firm with the intention of using her in the lumber trade between Atlantic and Pacific ports. The *Falls of Clyde* and *Diamond Head* are employed as oil barges on Puget Sound. The *Hai Hong* is in use as an oil barge in Philippine waters.

Another former British vessel, the *Annie Johnson* (ex *Ada Iredale*), built at Harrington, 1872, was included in the provisions of the Act of 1900, and formerly engaged in the sugar trade between San Francisco and the Hawaiian Islands. She was recently sold to French owners, renamed *Bretagne* and equipped with gas engines for the South Sea trade.

A number of foreign-built sailing vessels have recently been removed from the American register. Among these are the following: *Callao, Choctaw,* (ex *Hilja*), *Ellora* (former Br. str.), *E. R. Sterling* (ex *Everett G. Griggs,* ex *Lord Wolseley,* ex *Columbia,* ex *Lord Wolseley,* broken up), *Gratia, Helma, Katherine* (ex *County of Linlithgow*), built at Glasgow, 1887, *Marion Chilcott* (ex *Kilbrannan*), *Phyllis, Rhine,* and *Falls of Clyde.*

Under the terms of the Panama Canal Act (Aug. 24, 1912) foreign-built vessels not more than five years old and owned by American citizens were admitted to American registry for the foreign trade. In 1914 this law was amended to remove the age limit. In 1920 (Merchant Marine Act) the law was again changed so as to grant the privilege of the coastwise trade to foreign-built vessels owned by American citizens. Since 1912, 456 vessels(including forty sail craft) have secured American registry under the new law.

Only six full-rigged vessels of American construction remain on the register. With these exceptions, the list of such vessels now under American registry consists entirely of British-built craft. Of these all but six were built on the Clyde.

Including transfers under the various Acts of Congress, sixty-six foreign-built sailing vessels have been admitted to American registry during the past thirty years. Of these, thirty-eight vessels, of 73,789 tons net, are still on the American register, as recorded in "Merchant Vessels of the United States, 1927." Following is a complete list of these vessels:

TABLE 4

FOREIGN-BUILT SAILING VESSELS ON AMERICAN REGISTER, 1927
(1000 tons net and upward)

PRESENT NAME	FORMER NAME	BUILT	YEAR	HOME PORT
Annie M. Reid	Howard D. Troop	Pt. Glasgow	1892	San Francisco
*Belmont		Pt. Glasgow	1891	Boston
*Brooklyn	Margaret Overman	Greenock	1883	New York
	Drumeltan			
Chillicothe	Gamecock	Glasgow	1892	Astoria
	Arnoldus Vinnen			
	Alsterkamp			
	Flotow			
*Coastwise	Rosalia D'Ali	Maryport	1892	New Orleans
	Garrymount			
	Wythop			
*Conemaugh	Atlas	Liverpool	1879	Port Arthur
	Lornty			
David Dollar	Thielbek	Liverpool	1893	San Francisco
	Prince Robert			
Dunsyre		Pt. Glasgow	1891	New York
*Ellora		Glasgow	1879	Galveston
Golden Gate	Lord Shaftesbury	Whitehaven	1888	San Francisco

†Hai Hong	Progreso	Leith	1882	Manila, P. I.
	Nuuanu			
	Highland Glen			
James Dollar	Orotava	Pt. Glasgow	1901	San Francisco
	Comet			
James Rolph	Celtic Monarch	Liverpool	1884	San Francisco
Janet Dollar	Egon	Pt. Glasgow	1902	San Francisco
	Eclipse			
John Ena		Pt. Glasgow	1892	San Francisco
Joseph Dollar	Schurbek	Pt. Glasgow	1902	San Francisco
‡Lasbek	Ben Dearg	Glasgow	1894	San Francisco
Mae Dollar	Adolf Vinnen	Pt. Glasgow	1892	San Francisco
	Alsterdamm			
	Somali			
Mary Dollar	Hans	Pt. Glasgow	1904	San Francisco
Monongahela	Red Jacket	Glasgow	1892	San Francisco
	Dalbek			
	Balasore			
Monterey	Cypromene	Southampton	1878	San Francisco

* Barge
† Motor
‡ Unregistered

FOREIGN-BUILT SAILING VESSELS ON AMERICAN REGISTER, 1927 [*Continued*]

(1000 tons net and upward)

PRESENT NAME	FORMER NAME	BUILT	YEAR	HOME PORT
Moshula	Dreadnought Kurt	Pt. Glasgow	1904	San Francisco
*New Jersey	Yarkland	Barrow	1877	New York
*Oriole	Edith Wolden Edith Jones Erna Ednyfed	Sunderland	1881	New Orleans
†Reinbek	Lord Rosebery Windermere	Whitehaven	1889	San Francisco
*Roche Harbor Lime Transport	Star of Chile Coalinga LaEscocesa	Dundee	1868	Pt. Townsend
Star of Alaska	Balclutha	Glasgow	1886	San Francisco
Star of England	Abby Palmer Blairmore	Dumbarton	1893	San Francisco
Star of France		Belfast	1877	San Francisco
Star of Greenland	Hawaiian Isles	Glasgow	1892	San Francisco
Star of Holland	Homeward Bound Otto Gildemeister Zemindar	Belfast	1885	San Francisco

Star of Iceland	Willscott	Pt. Glasgow	1896	San Francisco
Star of Scotland	Kenilworth	Pt. Glasgow	1887	San Francisco
Tonawanda	Indra	Greenock	1892	Astoria
	Lita			
Tusitala	Sophie	Greenock	1883	New York
	Sierra Lucena			
	Inveruglas			
*West Point	The Bruce	Glasgow	1866	New York
William Dollar	Walkure	Dumbarton	1902	San Francisco
	Alsterberg			
*William T. Lewis	Robert Duncan	Pt. Glasgow	1891	San Francisco

* Barge
†Unregistered

A number of British-built sailing vessels are in use as tow-barges in the ports of the Pacific Coast. The larger proportion of these vessels are operated by James Griffiths & Sons, of Seattle. This firm owns the *Riversdale* (ex. German ship *Harvestehude,* but now operated under her original name), built at Port Glasgow, 1894; *Baroda,* built at Dumbarton, 1891; *Lord Templetown,* built at Belfast, 1886; *Daylight,* built at Port Glasgow, 1902; *Granco* (ex *Barracouta,* built as a steamship at Glasgow, 1883) and *William T. Lewis* (ex *Robert Duncan*) built at Pt. Glasgow, 1891. The *Melanope* (built at Liverpool, 1876) was recently sold by the Griffiths firm to the Canadian Pacific Railway Co., and is now in use as a coal hulk at Vancouver, B. C.

The *Santiago* (built at Belfast, 1885), until recently operated as an oil barge on San Francisco Bay, is now operated in the same capacity on Puget Sound. The *Simla* (built at Port Glasgow, 1890), also used as an oil barge at San Francisco, has been sold to Mexican owners for use as a storeship. The *Andromeda* (built at Port Glasgow, 1890) is in use as a coal barge on San Francisco Bay, formerly as the *Wellington* and now as the *King No. 1.* The American-built steel ship *Erskine M. Phelps* (built at Bath, Me., 1898) is in use as an oil barge between San Francisco and San Pedro, Calif.

Within recent years a number of sailing vessels formerly well known in maritime circles and latterly used as barges on the Pacific Coast have been wrecked or broken up. The *Roderick Dhu* (built at Sunderland, 1873), once famous in the coolie trade between the East and West Indies, spent her last

days as an oil barge and was lost on the coast of California in 1909. The *W. J. Pirrie* (built at Belfast, 1883), was wrecked on the coast of Washington in 1920. The *Belfast* (built at Belfast, 1874) was sold to a shipbreaker in 1924. The *Quatsino,* ex *Arthur Fitger,* ex *British Merchant* (built at Belfast, 1880) was stranded on the coast of Alaska in 1909. The *R. P. Rithet* (built at Glasgow, 1892) was burned at sea in 1917, on the passage from Honolulu to San Francisco. The *Ruth,* ex *Sharpshooter,* ex *Madeleine* (built at Sunderland, 1860) was sunk in collision in San Francisco Bay in 1924, while in use as a coal barge. The *Drumrock,* ex *Helwig Vinnen,* ex *Persimmon* (built at Leith, 1891), owned at Vancouver, B. C., and used as a barge, under her original name, was totally wrecked in Alaskan waters in 1927.

LAST SHIPS ROUND CAPE HORN

IN the 60's of the last century sailing ships were still predominant in the world's merchant fleets. Although the Suez Canal displaced these vessels from the tea trade they continued to hold their own down to the end of the century. The development of other trades, especially with Australia and California, tended to offset the loss of the China trade and gave the sailing ship a new lease of life.

The incidents that mark the end of the sailing ship in the trade to West Coast ports by way of Cape Horn constitute an epoch in maritime history well worthy of recording in permanent form and while the facts are still accessible. The suddenness of the happenings is the most striking feature of the case.

In the year 1900 sailing ships were still active in the grain trade from the West Coast to Europe. The largest number of sailings from San Francisco in a single month was recorded in February of that year, when twenty-one vessels cleared. A total of 153 vessels cleared from that port during the year. On May 15, 1900, there were sixteen sailing ships in San Francisco awaiting wheat charters, all but one being under British registry, and seventeen British vessels were listed on the way to that port. Including the vessels of different nations, approximately 160 sailing ships were bound to ports on the Coast.

During the next three years the grain market

underwent a marked decline. Grain freights dropped from 22s 6d to 10s 6d, due to the decrease of the wheat crop in California and the competition of the subsidized vessels of France. In 1903 fifteen vessels sailed from San Francisco in ballast for Australia, thus reversing the hitherto prevailing practice.

From this time the number of sailing vessels in the grain trade rapidly decreased. Steam had begun to invade the field. As far back as 1873 a steamer was loaded in San Francisco with grain for Europe. In 1881 the competition of steam vessels became a serious factor. Between 1873 and 1910 sixty-four steamers had loaded grain at San Francisco for Europe. By this time the quantity of wheat available for export from California had greatly decreased. In recent years barley has become the principal cereal export of the State. During 1927 San Francisco exported more than twelve million bushels of barley, valued at more than twelve million dollars.

Previous to the opening of the Panama Canal, in 1914, the export trade of the Coast had been taken over by steamships, sailing by way of Magellan Straits. Latterly a large line of American steamers abandoned the Magellan route and established a new route by way of Salina Cruz, where cargoes were transhipped across the Isthmus of Tehuantepec.

At the beginning of 1914 there were no British sailing ships in San Francisco, and only five such ships were lying in other West Coast ports. Seven British sailing ships were listed on the way to the

Coast, of which only two were bound direct from ports in Europe. The records of the period show that a considerable number of sailing ships (mostly bounty-fed Frenchmen) were at this time homeward bound from the Coast. Only a few of these vessels returned to the Coast, coming either by way of the Canal or from ports in Australia.

On August 1, 1914, which date may be said to mark both the opening of the Panama Canal and the beginning of the Great War, there were only three British sailing ships on the Coast, two in San Francisco and one in Portland. On the same date twenty-two vessels were listed on the way to the Coast, of which only six were bound direct from Europe and only two, the *Wray Castle* and *Inveresk,* had sailed from British ports, while only one, the *Dumfriesshire,* was bound to San Francisco. The latter vessel arrived at her destination on November 19, 1914, after a passage of 161 days from Amsterdam. These were the last British vessels to make the passage of the Horn under pre-war conditions.

The *Manga Reva* (ex *Pyrenees*) and *Edward Sewall* (now *Star of Shetland*) were the last American sailing ships to make the westward passage of Cape Horn. The *Manga Reva* arrived at San Francisco on April 10, 1914, out 131 days from Philadelphia. She returned to the Atlantic Coast and in April, 1917, was reported "missing," on the passage from London to Hampton Roads. The experience of the *Edward Sewall* off Cape Horn is described elsewhere in these pages.

The year 1915-16 witnessed the last west-bound passage of Cape Horn by sailing ships regularly

AMERICAN SHIP "ANNIE M. REID"

ON QUIET WATERS

employed in the grain trade. The French bark *Bayonne* arrived at San Francisco on August 23, 1915, from Rotterdam, and the French bark, *Champigny* arrived at the same port on October 8th of the same year, from Newcastle, England. The Russian ship *Port Caledonia* (formerly the British ship of the same name), from Dublin, and the French bark *Marechal de Castries,* from Liverpool, arrived at Portland and Seattle, respectively, in December, 1915.

The British bark *Inveresk* (now steamer of the same name) sailed from Dublin on December 14, 1915, for Portland, but went ashore at Sandy Point, near Punta Arenas, and abandoned the voyage. The British ship *Alice A. Leigh* (now *Rewa*) arrived at Portland on March 13, 1916, from Dublin. The French bark *Bossuet* and the British bark *Inverlogie,* both from Dublin, arrived at Portland in May, 1916. These two vessels came around Cape Horn in company in February, 1916, and were the last ships of the grain fleet to make the westward passage.

During the post-war period (1920-21) eleven sailing vessels (ten French and one American) sailed from San Francisco for Europe by way of Cape Horn. Several of these Frenchmen had been engaged in the transpacific trade during the War years. The single American vessel in this list, the *Marion Chilcott* (ex *Kilbrannan*), sailed from San Francisco on January 11, 1920, for Amsterdam, and is the last American sailing ship to make the eastward passage of the Horn. This vessel subsequently changed hands and is now under British registry, hailing from Trinidad.

The last sailing ship of any nation to make the eastward passage of Cape Horn from the West Coast was the German ship *Tamara XII,* ex *Tarpenbek* (Ger.), ex *Naworth Castle* (Br.), sailing from San Francisco on August 2, 1922, for the United Kingdom. This vessel arrived at her destination and later loaded coal at Leith for Hamburg. She was lost with all hands on the passage across the North Sea.

SAILING SHIPS IN THE CANAL

THE Panama Canal authorities, in a statement published in 1915, estimated that the new waterway would reduce by more than one-half the distance between ports on the Atlantic and Pacific coasts of the United States, as compared with the distance by the Cape Horn route. Upon this basis a sailing vessel might save from sixty to eighty days on the passage from New York to San Francisco by way of the Canal.

Estimating the operating expenses of a 2000-ton ship at $75.00 per day (a pre-war figure) and Canal charges at $2,700, there would remain a saving of $3,300. A saving of only thirty-six days at sea would cover Canal expenses, thus giving the vessel a leeway of forty-four days in which to break even.

This estimate of the saving of time and distance compares favorably with the actual experience of the sailing vessels that have used the Canal, due allowance being made for the increase in operating expenses since the new route was established in 1914.

With few exceptions the sailing ship had passed from the longer sea routes prior to the opening of the Panama Canal. Consequently the estimates of advantage in the use of the new waterway by that type of craft are of interest only as a matter of history. In this respect there is a marked difference in the course of events following the opening of the Suez Canal.

For many years following the opening of the new all-water route to the Orient, the effect upon the sailing ship was limited to the China clipper. As elsewhere noted, the latter was immediately forced to surrender the tea trade. The bulkier articles of commerce (cotton, jute, rice, etc.) were still carried by sailing vessels by way of the Cape of Good Hope. Much of the trade, both cargo and passenger, with Australia and New Zealand was carried in sailing vessels until well into the 80's.

Although the proportion of sail to steam tonnage began to decrease in 1870, the numbers and tonnage of sail vessels were well maintained for at least twenty years longer. On the whole, it may be said that, although the opening of the Suez Canal coincided with the beginning of the decline of sail, the former event was only one of several causes tending inevitably to displace the older type of ocean carrier.

During thirty years following the opening of the Suez Canal the sailing ship continued undisturbed in the trade to the West Coast by way of Cape Horn. In the first ten years of the present century a marked decrease took place in the number of sailing vessels bound to and from San Francisco and other ports on the Coast. In the latter years of the decade the greater part of the sail tonnage remaining in the Horn trade consisted of French vessels, supported mainly by the payment of national subsidies.

In fact the opening of the Panama Canal merely emphasized the end of the sailing ship as a factor in overseas commerce. But, as in the case of the

Suez Canal, the result itself was due to other causes. In both instances the growth of the steamship determined the outcome.

The establishment of the new water routes facilitated the growth of the steamship. Thus the effect upon the sailing ship was incidental, rather than determinative.

During the fourteen years that have elapsed since the opening of the Panama Canal on August 15, 1914, 242 sailing vessels (including repeated transits) have passed through that waterway.

Of the total number of transits by sailing vessel, 121 were made during the War years (1915-1918), and of these one-half were made by French vessels.

The first of such vessels was the British schooner *Zeta,* which made the transit on November 28, 1914, followed by the barkentine *Success,* December 31, 1914, and the American ship *John Ena,* January 22, 1915.

During the following eight years (including the War and post-war periods) a considerable number of sailing vessels made the passage of the Canal. With the decline of shipping, following the post-war period, this traffic materially diminished.

In the year 1926 only six sailing vessels passed through the Canal. This number includes the eastbound British ships *Kilmallie,* from Pisco, Chile, to London, with guano, and the *William Mitchell,* from La Vieja, Islands of Peru, to Wilmington, N. C. The last westbound transit of the Canal by a British sailing vessel was made by the schooner *Marion G. Douglas,* November 9, 1925, bound from Halifax, N. S., to Ensenada, Mex.

With the exception of the small schooner *Seaweed* (bound from Plymouth to Melbourne), the next preceding westward passage of the Canal by a British sailing vessel was that of the ship *Drumeltan,* which made the transit on April 4, 1920, bound from New York to Yokohama. This vessel made the return passage of the Canal on November 1 of the same year. Allowing twenty days on each passage between New York and the Canal, the entire voyage occupied less than nine months.

Eleven vessels have passed through the Canal westward to ports in Australia and the Orient. Only two sailing vessels have made the eastward passage from transpacific ports.

As noted elsewhere in these pages, practically all eastbound transpacific commerce still is conducted by way of San Francisco and other Pacific Coast ports, whence cargoes are transhipped by rail across the continent. This circumstance may be in part attributed to the smaller proportionate advantage of the Panama Canal, as compared with the Suez Canal route, in trade between the Orient and ports in Europe or the Atlantic Coast of the United States.

During the period, March, 1927–November, 1928, ten sailing vessels have made fifteen transits of the Canal. The following table shows the particulars of these transits:

TABLE 5

Sailing Vessels in Panama Canal

DATE 1927	VESSEL	FROM	TO	CARGO	FLAG
Mar. 22	Penang	London	Peru	Ballast	Finnish
Mar. 29	Vinnen	Chile	Norfolk, Va.	Nitrates	Italian
June 30	Helen B. Sterling	Seattle	Curacao	Lumber	United States
July 11	Tusitala	New York	Honolulu	Ammonia	United States
July 20	Penang	Peru	Jacksonville, Fla.	Guano	Finnish
July 28	Viking	Peru	Dublin	Guano	Danish
Aug. 30	Kobenhaven	Liverpool	Chile	Ballast	Danish
Sept. 25	Wm. Mitchell	Chile	Belgium	Nitrates	British
Dec. 31	Tusitala	Seattle	Baltimore	Lumber	United States
1928					
Mar. 30	Winterhude	Dunkirk	Peru	Ballast	Finnish
May 26	Tusitala	New York	Honolulu	Ammonia	United States
July 2	Wm. H. Harriman	Boston	Los Angeles	Ballast	United States
Aug. 7	Grace Harwar	Peru	Wilmington, N.C.	Guano	Finnish
Sept. 5	Winterhude	Peru	Antwerp	Guano	Finnish
Nov. 2	Tusitala	Seattle	Baltimore	Lumber	United States

AMERICAN SHIP "TUSITALA"

ONLY one American sailing ship, the *Tusitala,* now remains in the trade between Atlantic and Pacific ports of the United States. This vessel trades regularly between New York and Seattle by way of the Panama Canal.

The *Tusitala,* originally named *Inveruglas,* was built in 1883, by R. Steele & Co., of Greenock, Scotland, and is regarded as a good example of the fine models turned out by that famous firm. She is a full-rigged ship, of iron construction, and registers 1624 tons net. After several years' service in the Australian trade, she was sold and renamed *Sierra Lucena.*

The subsequent events in the life of this vessel are of interest, not only on account of her distinction as the last survivor of her class, but also, and chiefly, by virtue of her association, if only in a remote degree, with the traditions of the American ship in the Cape Horn trade.

In 1904 the *Sierra Lucena,* as she was then known, passed from British to Norwegian registry, and her named was changed to *Sophie.* She sailed under the Norwegian flag for nineteen years.

During the last five years of this period, the *Sophie,* under command of Capt. Hans M. Mikkelsen, made three voyages in the Argentine grain trade, carrying wheat, oats, and linseed to ports in England and the Mediterranean. Later she engaged

in the coal trade from Hampton Roads to ports in Denmark and Sweden.

In 1923, after having been laid up for eighteen months, the *Sophie* was libeled at Norfolk, Va., for a small sum (about $2,500), representing a ship-chandler's bill and arrears of the master's salary. The money was forwarded by the owners and the bills were paid within two hours of the time fixed for the sale of the vessel "under the hammer." Thus this fine ship escaped the fate that has overtaken so many of her sisters.

The *Sophie* was now bought by a group of men in New York for a sum estimated at $10,000. Following survey and repairs, she was granted American registry. At the same time her name was changed to *Tusitala* ("Story Teller"), a name originally conferred by the Samoans upon Robert Louis Stevenson.

The change of flags took place at New York on June 26, 1923, and was marked by a ceremony befitting the occasion. On the ship's main deck were assembled many men and women distinguished in the maritime circles of the port, including, of course, a number of actual seafarers of the old school.

A bottle of champagne was broken on the bell on the forecastle-head by Mr. Will H. Low, artist, and an old friend of "R. L. S.," and a few words of benediction were spoken. The subsequent events are thus described by Mr. Felix Reisenberg, himself a prime mover in the purchase of the ship:

"And at that moment Mr. Mikkelsen, the mate (formerly master) blew the whistle. The house flag

of the Three-Hours-for-Lunch Club, which had been hanging in a tidy bundle at the main truck, broke out from its halliard. And the Stars and Stripes rose brilliantly at the monkey gaff on the mizzen. The *Tusitala* was now an acknowledged member of the American merchant marine. Christopher Morley, who was at the helm of the meeting, read a letter from Joseph Conrad, addressed, 'To the owners and ship's company of *Tusitala.*' "

The Conrad letter, which now hangs in the ship's cabin, is as follows:

2nd June, 1923.

On leaving this hospitable country, where the cream is excellent and the milk of human kindness apparently never ceases to flow, I assume an ancient mariner's privilege of sending to the owners and the ship's company of the TUSITALA *my brotherly good wishes for fair winds and clear skies on all their voyages. And may they be many!*

*And I would recommend to them to watch the weather, to keep the halliards clear for running, to remember that 'any fool can carry on, but only the wise man knows how to shorten sail' * * * and so on, in the manner of ancient mariners all the world over. But the vital truth of sea life is to be found in the ancient saying that it is 'the stout hearts that make the ship safe.'*

Having been brought up on it, I pass it on to them in all confidence and affection.

JOSEPH CONRAD.

The new owners formed ambitious plans for the future of the ship. They proposed to fit her with Diesel motors and twin screws and to install accommodations for sixty first-class passengers. Furnished with "every modern improvement in elec-

AMERICAN SHIP "TUSITALA"

trical equipment, galleys, and refrigeration," the *Tusitala* would offer inducements to those seeking a sea voyage for health and pleasure, combining with the romance of the sailing ship the safety and comfort of travel by steamship.

It was planned to make a number of cruises around the coast of New England, alternated by longer trips to the waters of the Spanish Main. In the latter case the ship would touch at San Salvador, "lying-to off the famous island at nightfall and at daybreak making the identical landfall of Columbus, landing the traveler on the spot where the great discoverer first set foot on the New World."

As a further assurance of safety to the traveling public it was proposed that the complement of officers should consist of master-mariners trained in square-rigged sail. "Her organization and discipline will be that of the famous Black Ball packets in accord with the best traditions of the sea."

Nothing came of these plans. Instead, the *Tusitala* was placed in the trade from New York to Rio de Janeiro—outward with coal, homeward with magnesite ore—under command of Captain Coalfleet, with Mr. (formerly Captain) Mikkelsen as chief mate. Two voyages were made in this trade.

About this time the *Tusitala* passed to the sole ownership of Mr. James A. Farrell, Sr., and has since been operated "on owner's account" in trade between Baltimore, New York, Honolulu and Seattle. She flies the well-known house-flag of the Argonaut Line.

On November 4, 1924, the *Tusitala* sailed from New York, under command of Capt. Halvor Mik-

kelsen (no relation to the former master of the same name), on her first voyage in the trade to Honolulu and Seattle, by way of the Panama Canal. She made the whole passage in 76 days, sailing time.

Captain Mikkelsen resigned command at Seattle and was succeeded by Capt. Gilbert Gunderson, who brought the vessel to New York. Upon arrival at that port in 1925, he resigned (as did Mr. Mikkelsen, the chief mate), and was succeeded by Capt. James P. Barker, a former British shipmaster, who still continues in command of the ship.

The *Tusitala* has recently completed her seventh voyage in the trade between Atlantic and Pacific ports. The leading details of these voyages are of interest, in comparison with the conditions that prevailed in the same trade by way of Cape Horn.

On the westward passage from New York the *Tusitala* carries sulphate of ammonia to Honolulu. Thence she proceeds in ballast to Seattle. At the latter port she loads magnesite and lumber for Baltimore.

On her last voyage she made the passage from Seattle to Baltimore in 77 days, and completed the round voyage in about six months' sailing time.

Canal dues on 1646 tons net (P. C. measurement) were $2,000, and towage about $350, or approximately $4,700 on each voyage. The monthly payroll of the crew (23 hands, exclusive of the master) is about $1600. The total of these items on an eight months' voyage is about $17,500.

On the outward passage from New York to the Canal the course lies through the Mona Passage, between the islands of Porto Rico and Haiti, thus

avoiding head winds and current in the Gulf of Mexico, thence across the Caribbean Sea to Cristobal. Except during the rainy season (May-December), when the winds are variable, the N. E. trades blow steadily over the greater part of the latter course, affording a fair wind to the Canal.

Entering the Pacific Ocean, the course lies northwest to Honolulu. Leaving that port for Seattle, and following the usual practice of sailing vessels bound to northern ports on the Pacific Coast, the course is laid north until well out of the N. E. trades, thence northeasterly to Cape Flattery, with the wind usually from the northwest.

Homeward bound, the course lies south through the N. E. and S. E. trades. Arrived at the latitude of westerly winds (approximately 20 S.), the course is shaped east and north, to the Canal.

Passing into the Caribbean Sea, the course lies first to the east, then to the west-northwest and northwest, through the Yucatan Channel into the Gulf of Mexico, thence through the Strait of Florida into the Atlantic Ocean. The passage of the Strait is aided by the current of the Gulf Stream, running from two to five knots per hour.

The time occupied on these courses may be estimated as follows:

TABLE 6

DISTANCES BY PANAMA CANAL

Seattle to Baltimore

COURSE	*DISTANCE	DAYS
Seattle to Canal	4052 m.	55
Canal to Baltimore	2500 m.	27
Total	6552 m.	82

New York to Seattle

COURSE	*DISTANCE	DAYS
New York to Canal	2500 m.	20
Canal to Honolulu	4685 m.	52
Honolulu to Seattle	2409 m.	20
Total	9594 m.	92

* Distance by steamship route. The distance covered by sailing vessel is, of course, much greater.

Equipped with wireless apparatus and in every respect kept up to the highest standard, the *Tusitala* is an object of admiration among seafarers and worthily maintains the best traditions of her class. With a stiff breeze and everything drawing she can still reel off fourteen knots an hour. Dressed in a coat of pearly white, with green bottom, and with every stitch of canvas set taut, the old ship presents a yacht-like appearance that stirs the emotions of the spectator. It is reasonable to suppose that her owner, himself descended from seafaring folk, finds in these sentimental considerations something in the nature of a set-off to the "expenses of operation."

A meed of credit is due the men whose love of ships inspired them to back their sentiments with their money and by so doing preserve this fine old ship as a worthy memorial of a great era in the nation's history. Although the plans they had in mind for the future of the *Tusitala* "went agley," as the best plans are apt to do, there remains the satisfaction that the wish expressed by the great sea writer has already been abundantly realized.

A REMARKABLE HORN PASSAGE

THE American four-masted bark *Edward Sewall* (now *Star of Shetland*) arrived at Seattle, Wash., on August 6, 1914, after a passage of 293 days from Philadelphia. This was the last westward passage of the Horn by an American ship. In addition to this distinction, the *Sewall's* passage (one of the longest in recent times) is noteworthy in the history of the Cape Horn trade on account of accident and a run of head winds exceeding the usual experience of vessels in negotiating that difficult corner.

The *Edward Sewall,* under command of Capt. R. Quick, sailed from Philadelphia, October 18, 1913, for Seattle. While in the South Atlantic her bowsprit broke, and she was compelled to put back to Bahia Blanca. After repairs she sailed from the latter port on January 9, 1914. A few days later the bowsprit again gave trouble, necessitating a second return to port. On March 1 she again set sail from Bahia Blanca, after a loss of about two months' time.

On March 10 the *Sewall* passed through the Strait of Le Maire. Four days later she had reached a position west of Cape Horn. On the 15th she was within three miles of the beach. At this moment the wind hauled ahead. During the next five days the vessel made a course almost due south, arriving on the 19th at a point 68 W., 60.20 S., or about 300 miles south of her position on the 14th.

During the next three days a number of tacks were made, resulting in a net loss of westing. Between March 22 and 26, the vessel made about 300 miles of westing and reached a point 79.09 W., 60.40 S.. This was the farthest south made during the struggle to weather the Cape.

Two days later (Mar. 28) the *Sewall's* position was 80.05 W. 60.10 S. This was the best westing so far made since March 13. During the next nineteen days (Mar. 28-April 16) a number of tacks were made, the net result of which carried the vessel to a position 67.26 W., 56.09 S. Thus, all the westing which had been gained since March 13 was lost, and the vessel was now about 35 miles due east of Cape Horn. A whole month's work had gone for nothing!

During the next three days (April 16-19) the vessel made about 250 miles of westing and arrived at a point 73.29 W., 60.05 S. Between April 19 and May 4 many tacks were made. At one time (April 26) the *Sewall* reached a point 76.57 W., which longitude had been reached a month previously. She was driven back, and on May 4 had arrived at the longitude of 71.47 W.

The latter date marks the turning of the corner, the end of a fight which had lasted without intermission for two months. Between May 4 and 6 the *Sewall* made a course nearly due west. At midnight on the 6th she crossed the meridian of 76 W., which position she had previously reached on two occasions (March 28 and April 26). From this time the course lay north and west. On May

LINES OF A SEA BATTLE OFF CAPE HORN. COURSES MADE BY AMERICAN SHIP "EDWARD SEWALL" (1914).

8-9 the position was about 79 W., 55 S. Cape Horn had been weathered. The hard-fought battle had been won.

The full period occupied in making the passage from 55 S. in the Atlantic to 55 S. in the Pacific (March 10-May 8) was 59 days. Estimating the net distance in westing at 15 degrees (or 500 miles), the average gain was about eight miles a day. During the entire period the ship traversed fifty-four courses and crossed her own tracks twenty-five times. The distance sailed on the numerous courses aggregated 3,564 miles. During the entire passage from Philadelphia to Seattle the *Sewall* traversed a distance of 23,407 miles. Excluding the time occupied in returning to Bahia Blanca and making repairs, the actual sailing time was 216 days.

A few excerpts from Captain Quick's log-book will serve to convey some idea of the conditions encountered off Cape Horn. Beginning with the entry made on the day that land was sighted, the record reads as follows:

March 10, 1914. Comes in with fresh breeze and clear weather.

4 p. m., same wind and cloudy.

8 p. m., fresh breeze and part clear. Took in mainsail, outer jib and lower staysails.

Midnight same. Put ship on port tack.

4 a. m., more moderate. Put ship on course again and set all sail.

8 a. m., moderate breeze and clear.

Noon, fresh breeze and squally; sky overcast and light rain; took in light sails. At noon San Diego Cape bearing west, distance about four miles.

11 March, 1914. Comes in with fresh breeze, squally and light rain.

4 p. m., more moderate.

6 p. m., wind hauling ahead.

8 p. m., strong breeze and squally. Took in topgallantsails, crossjack, mainsail, lower staysails, outer jib.

Midnight, same weather.

4 a. m., moderating down to light breeze and clear weather. Wore ship and set all sail.

8 a. m., very light breeze.

Noon, calm and clear.

12 March, 1914. Comes in with calm and clear weather.

4 p. m., light air.

8 p. m., light breeze and cloudy.

Midnight, light breeze and sky overcast. Breeze freshening.

4 a. m., moderate breeze. Sky overcast and light drizzling rain. Took in light sails.

8 a. m., freshening still. Took in topgallantsails, crossjack and mainsail.

Noon, moderate gale and squally. Sky overcast and drizzling rain. Took in outer jib, mizzen upper topsail and foresail.

13 March, 1914. Comes in with moderate gale. Sky overcast and light drizzling rain.

2 p. m., more moderate. Set foresail and mizzen upper topsail and outer jib.

8 p. m., fresh breeze and cloudy; light rain.

Midnight, moderate breeze and part clear.

4 a. m., light breeze and cloudy. Wore ship and set all sail.

8 a. m., light breeze and cloudy.

Noon same.

14 March, 1914. All this day light breeze and sky overcast. Middle part light drizzling rain.

Very strong N. E. current, allowing 48 miles N. E. true.

15 March, 1914. Light breeze and sky overcast and light drizzling rain.

2 a. m., wind hauling round to WSW and breezing up. Took in light sails.

4 a. m., strong breeze and sky overcast and rain. Took in topgallantsails, outer jib, crossjack and mainsail, and wore ship.

8 a. m., same wind and weather.

Noon, same.

At 12:30 p. m. Cape Horn bearing N., distance 3 miles. At noon Diego Ramirez Island bearing west, distance about 8 miles.

16 March, 1914. Comes in with strong breeze and sky overcast, with rain.

4 p. m., increasing to fresh gale. Took in upper topsails, lower staysails and foresail, leaving 3 lower topsails and inner jib set.

8 p. m., fresh gale. Sky overcast and rain. Heavy sea getting up. Decks full of water all the time. Heavy squalls.

Midnight same.

4 a. m., moderating some.

8 a. m., moderate gale and cloudy. Set foresail. 10 a. m., set fore and main upper topsails and lower staysails.

Noon, strong breeze and cloudy.

17 March, 1914. Comes in with strong breeze and cloudy.

4 p. m., same. Heavy sea. Plenty water on deck.

8 p. m.,same.

Midnight, moderating some.

4 a. m., moderate breeze and part clear.

6 a. m., set mizzen upper topsail, mainsail, lower topgallantsails and outer jib.

8 a. m., moderate breeze and cloudy. Sea going down. Set crossjack, upper topgallantsails, jib topsail, jigger topmast staysail and spanker.

Noon, breeze freshening and cloudy.

18 March, 1914. Comes in with fresh breeze and cloudy.

2 p. m., took in upper topgallantsails, jib topsail and spanker.

4 p. m., strong breeze. Took in crossjack, mainsail and jigger topmast staysail.

8 p. m., strong breeze, cloudy and rain.

Midnight same.

4 a. m., same weather. Breeze freshening. Took in lower topgallantsails, mizzen upper topsail and outer jib.

8 a. m., increasing to fresh gale. Took in fore and main upper topsails, foresail and lower staysails. Sea getting up. Decks full of water all the time.

Noon, fresh gale. Sky overcast and light rain.

19 March, 1914. Comes in with fresh gale. Sky overcast and light rain.

4 p. m., same.

8 p. m., same.

Midnight, same, wind and weather. Very heavy sea. Decks full of water all the time.

4 a. m., moderating some.

8 a. m., moderate gale and sky overcast. 10 a. m., set main and fore upper topsails and lower staysails.

Noon, strong breeze and sky overcast. Wore ship.

20 March, 1914. Comes in with strong breeze and sky overcast.

4 p. m., set foresail.

8 p. m., fresh breeze and clear. Set mizzen upper topsail. 10 p. m., set outer jib.

Midnight, fresh breeze and clear weather. Heavy cross sea. Ship rolling and taking water on. Decks full all the time.

4 a. m., more moderate sea.

5 a. m., set lower topgallantsails.

8 a. m., fresh breeze and cloudy. 11 a. m., wore ship.

Noon, same wind and weather.

21 March, 1914. Comes in with fresh breeze and cloudy.

4 p. m., same.

8 p. m., same weather. Wind moderate.

Midnight, moderate breeze and clear.

2 a. m., freshening up into gale. Took in lower topgallantsails, outer jib, after staysails and foresail.

4 a. m., moderating again to moderate breeze and cloudy. Light rain.

6 a. m., set foresail, outer jib, after staysails, lower topgallantsails, mainsail and spanker.

Noon, fresh breeze. Sky overcast and rain. Wore ship at 4 a.m. and 11 a. m.

22 March, 1914. Comes in with fresh breeze and sky overcast, with rain.

4 p. m., wind increasing to gale, with heavy sleet squalls. Took in all sail but lower topsails and inner jib.

8 p. m., same wind and weather. Heavy sea getting up. Plenty water on deck.

Midnight, same.

4 a. m., more moderate.

8 a. m., moderating to light air.

Noon, light air and cloudy.

23 March, 1914. Comes in with light air and cloudy.

4 p. m., light breeze and cloudy.

8 p. m., same.

Midnight, light breeze and clear.

1 a. m., wind came from SE, with sleet. Fresh breeze. Set outer jib and lower topgallantsails, foresail and lower staysails.

4 a. m., moderate breeze and squally.

5 a. m., set mainsail.

8 a. m., set crossjack.

Noon, fresh breeze and squally.

The foregoing log-book entries, covering the first fourteen days off Cape Horn, are typical of the daily experience during the two months' struggle. On April 20 Captain Quick met with an accident, which incident is briefly recorded, as follows:

20 April, 1914. Fresh breezes and sky overcast and light drizzling rain.

6 p. m., Wore ship. While rounding the fore yards I got hurt and laid up.

The entries of May 6-10 describe the final victory in the long struggle:

6 May, 1914. All this day light airs and clear weather. A. M., comes in with light airs and clear.

4 a. m., freshening and cloudy.

5 a. m., Wore ship.

8 a. m., fresh breeze and cloudy. All sails set but royals.

Noon, fresh breeze and cloudy. Cap on fore topmasthead cracked. Put on band to strengthen it. Main topgallantsail sheet parted. Burst the sail.

7 May, 1914. All this day moderate breezes and cloudy. All sail set. Allowing for current 12 miles east true.

8 May, 1914. All this day light breezes and calm. Part clear weather. Allowing for current 12 miles east true.

9 May, 1914. From calm to fresh breeze. Partly clear weather. All sail set.

10 May, 1914. From fresh breeze to light breeze. Latter part light airs and cloudy.

During these four days the vessel made a northwest course and covered a distance of 539 miles. On May 10 she had reached a point west and north of Cape Pillar, the extreme western point of Terra Del Fuego.

The *Edward Sewall* loaded at Seattle for Dublin and made the eastward passage by way of Cape Horn. Between 1915 and 1920 she made several voyages to South American ports and to the Orient with case-oil under the ownership of the Texas Oil Company. In 1922, while lying at New Orleans, she was bought by the Alaska Packers' Association and her name was changed to *Star of Shetland*. She made the passage to San Francisco by way of the Panama Canal and has since been employed in the Alaskan salmon fisheries.

SHIPWRECKS IN THE NORTH

THE Alaskan fisheries have exacted a heavy toll of the sailing vessels engaged in that industry. Among the more notable of these losses are several ships formerly well known in maritime circles.

A brief summary of the incidents marking the end of these vessels is here presented. In each instance the narrative of events is quoted from the report made by the shipmaster to his owners—the "plain, unvarnished tale" of the seaman in command.

Wreck of the Ship "Sterling"

The ship *Sterling,* built at Bath, Me., in 1873, and owned by the Alaska Packers' Association, sailed from San Francisco on April 27, 1898, in command of C. O. Anderson, bound to Koggiung, Alaska, with a cargo of coal, cans, retorts and coolers. Her complement consisted of the master, twenty-one seamen and 150 Chinese cannery hands.

At midnight on May 19 the *Sterling* had arrived at a position 18 miles S. W. by S. from Cape Constantine, near the entrance to Nushagak Bay. The vessel was put about on the offshore tack to await daylight. The subsequent events were reported by the master, as follows:

"May 20, at 3 a. m., wore ship toward the land. Wind fresh W. N. W. At 5 a. m. sounded and found ten fathoms of water and ship's position by cross bearings of Hagemeister and Round Islands being 13 miles S.W.¾W. from Cape Constantine. Changed

the ship's course to east by south (wind fresh from west), so as to clear shoals to the southward of Cape Constantine.

"At 6 a. m. May 20 ship struck heavily on shoal with 18 feet of water on it. Position 10 miles S.W. by S. from Cape Constantine. This shoal was not marked on the chart. Sent a boat with second-mate and four men to Nushagak for a tow-boat. Carpenter starting pumps by steam.

"At 7 a. m. wind increased, with a heavy sea, which drove the ship harder on, knocked off her rudder, and broke her keel. By this time the ship had 12 feet of water in her.

"At 8:30 a. m. launched six boats and landed 150 Chinese on Cape Constantine, crew staying by the ship in hopes of saving some of their effects.

"At 5 p. m. the ship was full of water and commenced to break up. As night was coming on, and we could do nothing to save either vessel or cargo, the ship was abandoned. The following morning we saw that the mainmast had fallen over the side and the ship was gradually breaking up.

"On the evening of May 21 the master and mate (R. P. Melville) visited the wreck with the steamer *President,* but on account of a S. E. gale blowing and a heavy sea, could do nothing. At this time the vessel was completely under water. Officers and crew were all saved, as also were the 150 Chinese."

Wreck of the Bark "Servia"

The bark *Servia,* built at Bath, Me., in 1883, and owned by Henry Nelson, of San Francisco, sailed

from that port on August 26, 1907, under charter to the Alaska Packers' Association, and commanded by Anders Aas, bound to Karluk, Alaska, with a cargo of cannery material and supplies.

The *Servia* arrived at her destination on October 10. After discharging her cargo she proceeded to load salmon for the return passage to San Francisco. From this point we quote the log of Captain Aas, as follows:

"While at the mooring the vessel rode out several gales from all quarters up to November 6, at which time an unusually strong gale set in from the N. E., with a high sea running.

"The ship labored heavily all the forenoon with 90 fathoms of mooring chain and 75 fathoms of ship's chain, making 165 fathoms scope. Although there was more chain in the locker, it was thought unsafe to try to give it to her, as it was feared that the chain could not be given her evenly and slow enough to be on the safe side. As the ship was tailing in for the shoal water, the sea became rougher for every fathom of chain paid out.

"At about 1:15 p. m. the port chain carried away with a jar that was felt all over the vessel. From the way the broken chain was leading it was concluded that it carried away near the buoy.

"Immediately got up steam in donkey boiler and got two headsails, two staysails and the spanker ready to set. Trimmed the yards so that she would cant to starboard and head in for a shingle beach on the west side of the mouth of the Karluk River. This precaution was taken to save lives in case the

starboard chain should carry away before the port chain was hove in.

"At about 1:45 p. m. commenced to heave in the port chain. Had succeeded in getting in about 10 fathoms, when, at about 2 p. m., the starboard chain carried away and the ship fell off in the trough of the sea, rolling heavily.

"Immediately got the sails set that had been made ready, and the ship drifted broadside on toward the beach. The two chains dragging on the bottom prevented her from paying off.

"She struck a rock about seventy-five feet off the beach at high-water mark, below the mizzen rigging, which prevented her from getting nearer to the beach and also caused a big undertow between the vessel and the shore.

"About fifteen minutes after striking on, or about 2:50 p. m., the main rigging went overboard. The vessel was lying on her port bilge at an angle of about 45 degrees, and breaking up fast.

"Eight of the men undertook to swim to the beach. Of this number, one succeeded in reaching the shore, three were drowned, and the other four, after making several unsuccessful attempts to reach the shore, returned to the ship.

"At about 3:30 p. m. the wreckage from the cargo and vessel was piled up in such quantities as to almost form a solid floating bridge to the shore, over which the men who had remained with the vessel succeeded in making a landing.

"At 5 p. m. all the crew, with the exception of the three who were unfortunately drowned, were

housed, fed, and clothed, and medical attention given where necessary. The vessel was completely broken up in less than two hours after striking."

Wreck of the Bark "Star of Bengal"

The bark *Star of Bengal,* built at Belfast, Ireland, in 1874, and owned by the Alaska Packers' Association, sailed from San Francisco on April 22, 1908, with a cargo of cannery supplies, bound for Fort Wrangel, Alaska. She was commanded by Nicholas Wagner and carried a complement of 146, including 110 Chinese cannery hands.

The vessel arrived at her destination on May 5, and loaded a cargo of salmon for San Francisco. On September 19 she left her moorings in tow of two small steamers. Captain Wagner reported the subsequent happenings in the following terms:

"Left cannery at 8:20 a. m. in tow of steamer *Hattie Gage,* Captain F. Farrer, and steamer *Kayak,* Captain P. Hamilton. Weather fine, with light S. E. wind and clear weather. Rounded Point Baker at 3:50 p. m. Course south.

"At 1:40 a. m. steamer blew one long and two short whistles, signal to haul in starboard braces. Already braced that way. All went well till 1:45 a. m., when I was called on deck by Victor Johanson, mate, who said we were getting rather close to land. Wind was freshening from S. E., dark and squally.

"Sighted land through the mist, which appeared rather high. Endeavored to get ship on starboard tack and tried to hail steamers by use of megaphone and foghorn, to draw their attention to the prox-

imity of the land, yelling 'Starboard, starboard,' till I got hoarse, but got no response of any kind from either steamer. Steamer *Hattie Gage* at this time being on the port beam. Steamer *Kayak* about one-half point on starboard bow. Ship's head S.S.W.

"Mizzen staystail and spanker were set with sheets hauled flat. Also set mizzen topmast staysail to bring ship's head into the wind and head off shore. Vessel had but very little headway on, with ship's head coming up to south and west.

"Finally, at about 3:30, or thereabouts, vessel's head got pointed to the N. E., when I ordered topsails set, and had just succeeded in getting the main topsail half way up when ship's head was dragged up into the wind again, and she fell off again on the port tack. I countermanded the order to set topsails and lowered them down again.

"I then had cast of lead taken, and found 25 fathoms. At 3:50 a. m. ordered anchor let go and dropped same in 17 fathoms. Breakers on the rocks in plain view. Immediately after dropped second anchor, but ship held to first one, with little or no strain on the other. Tugs cut hawsers about ten minutes after anchoring. Burned four blue lights and saw an ugly-looking rocky shore close aboard—about two-thirds of ship's length away.

"Secured fore and aft sails after hauling same down and immediately set about clearing away the lifeboats on after gallows. Hung same on davits and lowered them level to the rail. Secured the main hatches more firmly and got forward boats off gallows. First boat over rail broke painter and

drifted out of reach and ashore. Second boat got swamped, fall carrying away and drifted ashore.

"Ordered early breakfast. 7:10 a. m. wind freshening and squally. Ordered all hands into life-preservers and had men adjust same on Chinese. Absolutely no confusion, as I told them that when steamer came I would put all on board and remain by vessel till she struck. Crew replied they would stand by me till the last.

"By 8 a. m. wind had increased to gale, with no signs of either steamer in the offing. Concluded they had abandoned us, and that we must try and get ashore on the rock-bound shore. Knowing it was almost certain death to attempt to send boat, and having no other alternative, I called for volunteers to take line ashore, which was responded to by Harry Lewald, Olaf Hansen, Fred Matson, sailors, and Frank Muir, second cook. The port lifeboat was then lowered, that being the lee side, and boat slackened away, falls being cut with axes. Boat was immediately swept clear of stern and towards the rocky beach, striking one of the rocks after being swept twice in the breakers and staving her bottom and stern.

"Men jumped out at edge of breakers, boat pulling them back two or three times as the breeches line was made fast to same. Finally, after great effort, the line was secured and hauled as fast as the entangled kelp and rock would permit, and made fast to a tree, amid shouts and cheers of those on the ship, at exactly 9 a. m.

"Line was then hove taut from masthead. Mar-

tin Christensen then volunteered to be the man to take the hauling line for the breeches buoy, and had succeeded in getting about half-way when the vessel further dragged and struck at 9:32 a. m., slackening rope and throwing Christensen into the water, jerking now up, now down, till he became exhausted and thrown on rocks and was hauled out by his comrades ashore.

"As soon as the vessel struck great waves swept her from stem to stern. Seeing that the vessel would break up shortly and litter the sea with wreckage I asked the men to jump and swim, but they preferred to remain with me till the last. Tried to haul broken boat off beach, but line became entangled in kelp and wreckage and boat got smashed to splinters.

"Sea was now raising havoc all over ship. Masts commenced to sway and rigging held good, but the pounding on rocky bottom soon demolished the hull, which disappeared in the angry waters in sections with the fall of each mast, the foremast being the first to go, followed by the main and lastly mizzen—not more than five minutes elapsing between fall of fore and mizzen mast.

"With the fall of masts, all hands were swept into the seething mass strewed with wreckage. The more fortunate were cast ashore in a helpless and exhausted condition, numbering 27 souls (17 whites, 10 Asiatics). The first to reach the beach being Andrew Olsen, who was swept off a little in advance of the rest of us.

"Then came two Chinese and Pat Loftus, cook,

and the rest of the survivors, all helpless and crippled, having to be dragged above high water clear of wreckage, which was piling up high, Alf Olsen being the last to reach the shore.

"The beach was patrolled all day, looking for other survivors, but only one other was seen, Olaf Petersen, who had just got inside breakers, only to be dragged out by undertow and smothered by a mass of wreckage that tumbled about him.

"Most of the survivors being crippled and exhausted from their trying experience, it became necessary to do something to stimulate life in them. Accordingly, a fire was built and from among the wreckage was taken a change of clothing and hot coffee made and given to them, which revived them a good deal.

"From the time the vessel first struck till she had completely disappeared, was exactly 54 minutes, as my watch stopped when I struck the water.

"Continuous search was made for the bodies of the rest of the white men, but only nine were recovered and buried, among the missing being Mr. Norman Hawkins, machinist and brother-in-law of Superintendent Babler, and Frank Healy, bookkeeper."

The *Star of Bengal* carried a complement of 138 persons on the homeward passage. Of this number only 27 survived the wreck. The owners of the vessel, in addition to payment to the survivors of compensation for loss of clothing, made donations to the wives, mothers, and other relatives of the lost, amounting in all to more than $16,000.

Wreck of the Ship "Tacoma"

The ship *Tacoma,* built at Bath, Me., in 1881, owned by the Alaska Packers' Association and commanded by Captain William Sorensen, sailed from San Francisco on April 10, 1918, bound for Nushagak, Alaska. On the 29th she passed through Unimak Pass. Shortly thereafter she encountered ice. The sequel may best be gathered from the master's report:

"On the 3rd of May, at 11 p. m. the first ice was encountered and in consequence wore ship. At 9 a. m. ice was again encountered and the steamer *North Star* was spoken, reporting solid ice to the north and east and that she had been in the ice for eight days. At 9:15 a. m. wore ship.

"On the 4th and 5th tacked or wore ship as required on account of ice. On the 6th and 7th no ice was encountered, the vessel being practically hove to outside the ice fields. On the 8th ice was again encountered, and at 9 p. m. wore ship in consequence.

"On the 9th and 10th there was a heavy gale blowing, with a considerable sea, and no ice was encountered. A whole fleet of vessels was in company. On the 11th the weather cleared and the ice fields were seen, bearing N.N.E., leaving a channel estimated at about 15 miles between the ice fields and the land. The vessel was accordingly tacked up this passage, together with several other cannery vessels.

"On the 13th the wind fell very light, the weather being foggy, and during the day the ice drifted in,

until at noon the vessel was surrounded by ice. On the 14th the vessel was helpless in the ice, drifting with the tide, two other vessels being in the vicinity in a similar condition.

"Soundings at midnight showed 12 fathoms of water. At noon Johnston's Hill, on the Naknek River, was bearing N.½E., the sounding showing 10 fathoms. About this time the vessel's stem and stem-iron broke with the pressure of the ice.

"On the 15th there were light winds from the S.S.W., the weather being hazy. The vessel was still surrounded by ice, and at 3 p. m. her rudder was crushed.

"At 3:30 p. m. the port anchor was let go to hold the vessel's bow head on to the ice and was subsequently hove up on the turn of the tide. On the 16th the anchor was let go at 8 p. m. to save the rudder from the ice. At 10 p. m. the vessel was completely helpless in the ice and the rudder got smashed and at the turn of the tide the vessel was forced up about 10 feet by the pressure of the ice fields. Later in the day several other vessels were seen fast in the ice close by.

"On the 17th at 3:30 p. m. the vessel was very badly crushed in the heavy ice. She was not forced up as high as on the previous day and seemed to bear the full crushing power of the ice field. Her stem opened out, in consequence of which she began to leak very badly.

"The main steam pumps were worked and a hole cut in the main deck through which a suction was led to the lower hold, two additional pumps being

also rigged up, and the bow was also caulked from the inside as well as the outside. Part of the crew were engaged in removing the cargo from forward to aft in order to lift the bow of the vessel, as she appeared to be settling by the head, and in order to repair the damage already sustained there.

"At 8 p. m. the vessel was lifted up aft by the ice and was leaking very badly, but the water was kept under control. At 9:30 p. m. there was 9 feet of water in the hold, with three pumps going. The main pump, however, had to be stopped at times for slight repairs. The soundings showed 8½ fathoms of water.

"On the 18th of May the time was changed from nautical to civil time. At 9:30 a. m. the rudder and rudder-post had broken and the decks were opening out in several places. The stem was also opening out further. The lifeboats were therefore launched on to the ice and provisioned. The pumps were going all the time, sometimes being choked with coal, etc., but in spite of this at midnight there was 12 feet of water in the hold, and this was gaining fast.

"On the 19th, at 2 a. m., the water was up to the 'tween-decks forward, the vessel being down by the head. The vessel's timbers could be heard cracking from the pressure exerted by the ice. At 10 a.m. the upper deck was breaking up and the vessel gradually settling.

"At 1 p. m. the vessel slowly sank by the bow, the bowsprit, the fore and mizzen masts, and main topgallant and main topmasts breaking. The ves-

sel then seemed to break in two amidships and the mainmast disappeared through her bottom. After which the ice closed in over the vessel.

"Her position when she sank was latitude 57.53 N., longtitude 158.04 W., Cape Creig bearing E. by S.½S. and approximately 12 miles away.

"After camping on the ice, the crew and cannery employees eventually managed to reach various other vessels which were also fast in the ice within a radius of a few miles, with the exception of one man, who was found dead in the ice."

The single death involved in the loss of the *Tacoma* was that of Joseph Cruz, an ordinary seaman. He was lost while making his way across the ice with a party to board the ship *St. Nicholas* and died from cold and exposure.

VESSELS LOST IN THE WAR

AMERICAN merchant marine losses caused by enemy action during the Great War (1914-1918) totaled 146 vessels, of 367,410 tons gross. Six hundred and seventy-seven lives were lost in these disasters. In all but four instances these losses occurred subsequent to the declaration by the United States of a state of war with Germany (April 6, 1917). The principal exception is that of the ship *William P. Frye,* which was captured and sunk by the German cruiser *Prinz Eitel Friedrich* in the North Atlantic, January 27, 1915.

Included in these figures were 59 sailing vessels, of 58,048 tons gross. Of this number six vessels, of 3,657 tons gross, were owned in San Francisco; namely, *A. B. Johnson, Beluga, Encore, Manila, R. C. Slade,* and *Winslow.* Following the destruction of the German squadron under command of Admiral Von Spee (December 8, 1914), many sailing vessels of the Allied nations put to sea from ports on the Pacific Coast bound for ports in the War zone. These vessels made the passage by way of the Panama Canal. A considerable number of them were captured and destroyed in the North Atlantic. The American vessels above named were destroyed in the South Pacific, between June 6 and July 8, 1917, by the German raider *Wolf.*

With the exception of one seaman (drowned from the ship *Dirigo*), no lives were lost in the sinking of sailing vessels. On the following pages is a complete list of the American sailing vessels destroyed by mines, submarines, etc., during the War:

TABLE 7

Sailing Vessels Lost in the War

(Reported by U. S. Department of Commerce)

VESSEL	RIG	TONS GR.	CASUALTY	DATE	PLACE
A. B. Johnson	Sch.	529	Sunk by German raider Wolf	June 14, 1917	2.00 S., 150.00 W.
A. B. Sherman	"	611	Torpedoed	June 26, 1917	48.03 N., 7.25 W.
A. E. Whyland	"	130	"	Mar. 13, 1918	Off Teneriffe, C. V. I.
Ann J. Trainer	"	426	"	Sept. 16, 1917	Off Brest, France.
Annie F. Conlon	"	591	"	Oct. 3, 1917	15 miles southeast Scilly Isls.
Annie Perry	"	116	"	Aug. 3, 1918	35 miles W. of Seal Is.
A. Platt Andrew	"	141	Sunk by German raider Triumph	Aug. 20, 1918	55 miles S. of Canso, N. S.
Augustus Welt	"	1,221	Torpedoed	July 21, 1917	40.30 N., 7.20 W.
Barbara	"	838	Submarined	May 24, 1917	34.20 N., 8.44 W.
Beluga	Bk.	507	Sunk by German raider Wolf	July 9, 1917	Off Fanning Isl. S. P.
Carl F. Cressy	Sch.	898	Torpedoed	Aug. 23, 1917	45.52 N., 11.13 W.
Childe Harold	"	781	"	June 21, 1917	47.50 N., 7.30 W.
Christane	Bk.	964	"	Aug. 7, 1917	37.40 N., 20.40 W.
Dirigo	Shp.	3,004	Submarined	May 31, 1917	Southwest of Eddystone, England.

Sailing Vessels Lost in the War [*Continued*]

VESSEL	RIG	TONS GR.	CASUALTY	DATE	PLACE
Dorothy B. Barrett	Sch.	2,088	Torpedoed	Aug. 14, 1918	Off Anglesea, N. J.
Edward H. Cole	"	1,791	"	May 31, 1918	Off Barnegat, N. J.
Edwin R. Hunt	"	1,132	"	April 7, 1917	Off Cape Gata, Spain
Encore	"	651	Burned by German raider Wolf	July 14, 1917	22.45 S., 171.42 E.
Fannie Prescott	"	404	Torpedoed	Oct. 25, 1917	32.47 N., 9.41 W.
Florence Creadick	"	732	"	July 15, 1917	20 miles north of Ile de Bas, France
Frances M.	"	1,228	"	May 18, 1917	35.55 N., 11.25 W.
Galena	Bk.	1,073	"	June 25, 1917	Off Quessant Isl., France
Harwood Palmer	Sch.	2,885	"	May 23, 1917	5 miles southwest of La Blancha Isl., France
Hattie Dunn	"	435	"	May 25, 1918	37.00 N., 75.05 W.
*Hauppauge	"	1,446	"	May 25, 1918	38 miles off Blackfish Bk., Md.
Henry Lippitt	"	895	"	Sept. 23, 1917	48.17 N., 10.05 W.
Hildegard	Bkn.	622	"	July 10, 1917	Off Start Point, Eng.
Isabel B. Wiley	Sch.	776	"	June 2, 1918	39.10 N., 73.07 W.

JACOB M. HASKELL	"	1,778	"	May 31, 1918	Off Barnegat, N. J.
JENNIE E. RIGHTER	"	647	"	Oct. 16, 1917	43.54 N., 10.02 W.
J. J. FLAHERTY	"	162	"	Aug. 25, 1918	30 miles N. W. of St. Pierre-Miquelon
JOHN H. KIRBY	Bk.	1,395	Sunk by German raider Wolf	Nov. 15, 1917	320 miles southeast of Port Elizabeth, S. A.
JOHN HAYS HAMMOND	Sch.	132	Torpedoed	July 27, 1917	350 miles N.W. of Ireland.
JOHN TWOHY	"	1,019	"	July 21, 1917	35.55 N., 23.20 W.
JULIA FRANCES	"	183	"	Jan. 27, 1918	38.00 N., 11.00 W.
LANSFORD	"	830	Shellfire	July 21, 1918	4 miles off Cape Cod, Mass.
LAURA C. ANDERSON	"	960	Torpedoed	Aug. 29, 1917	49.53 N., 00.55 W.
LYMAN M. LAW	"	1,300	Submarined	Feb. 12, 1917	38.32 N., 7.58 E.
MAGNUS MANSON	Sch.	1,751	"	May 25, 1917	50 miles southwest of Cape St. Vincent, Port.
MANILA	"	731	Sunk by German raider Wolf	July 8, 1917	10.00 N., 144.00 W.
MARGARET B. ROUSS	"	701	Submarined	May 27, 1917	42 miles south of Monaco, France.
MARGARET L. ROBERTS	"	535	Torpedoed	Nov. 16, 1917	33.20 N., 19.30 W.
MARGUERITE	"	1,553	Submarined	April 4, 1917	35 miles southwest of Sardinia.
MARY W. BOWEN	"	2,153	Torpedoed	July 7, 1917	47.20 N., 8.10 W.

* Salvaged and renamed ALICE L. PENDLETON

Sailing Vessels Lost in the War [*Continued*]

VESSEL	RIG	TONS GR.	CASUALTY	DATE	PLACE
Muriel	Sch.	120	Torpedoed	Aug. 3, 1918	45 miles W. of Seal Isl., N. S.
Paolina	Bk.	1,337	"	Sept. 25, 1917	48.37 N., 8.45 W.
Percy Birdsall	Sch.	1,127	Submarined	April 27, 1917	Bay of Biscay.
R. C. Slade	"	673	Burned by German raider Wolf	June 17, 1917	2 N., 150 W.
Robert and Richard	"	140	"	July 22, 1918	25 miles S. E. of Cape Porpoise, Me.
Sam C. Mengel	"	915	Torpedoed	June 2, 1918	38.07 N., 73.46 W.
Stanley M. Seaman	"	1,060	Torpedoed	Aug. 5, 1918	34.59 N., 73.18 W.
Sylvania	"	136	Sunk by German raider Triumph	Aug. 21, 1918	90 miles S. E. of Canso, N. S.
Vincent	Shp.	1,904	Foundered (struck mine)	Sept. 27, 1915	North Sea.
William H. Clifford	Sch.	1,593	Torpedoed	Sept. 8, 1917	48.30 N., 12.20 W.
William P. Frye	Shp.	3,374	Blown up by dynamite by the German cruiser Prinz Eitel Friedrich	Jan. 28, 1915	29.45 N., 24.50 W.
Winslow	Sch.	566	Sunk by German raider Wolf	June 6, 1917	Off Sunday Isl., S. P.
Woodward Abrahams	"	744	Submarined	April 22, 1917	52.00 N., 24.00 W.
703	"	934	Shellfire	July 21, 1918	4 miles off Cape Cod, Mass.
740	"	680	"	July 21, 1918	4 miles off Cape Cod, Mass.

Under the Joint Resolution of Congress (May 12, 1917) all enemy vessels in the ports of the United States and its territories and insular possessions, except the American Virgin Islands, were taken over by the Government. The vessels seized numbered 100, of 640,440 tons gross. Of these, 7 steamships, of 63,684 tons gross, were torpedoed while in the service of the United States during the War.

Included in the seizures of German merchant craft were 7 sailing vessels, of 15,795 tons gross, as follows:

FORMER NAME	PRESENT NAME	TONS GROSS
Steinbek	Star of Falkland	2,163
Arnoldus Vinnen	Chilicothe	1,862
Dalbek	Monongahela	2,782
Matador	Montauk	1,467
Kurt	Moshula	3,116
Ottawa	Muscoota	2,660
Indra	Tonawanda	1,745

Adding to these figures the German sailing vessels subsequently transferred to American registry by purchase from the Reparations Committee (as noted elsewhere in these pages), the total number of such craft added to the American merchant marine is 16, of 40,362 tons gross. Of these, three vessels *(Steinbek, Matador,* and *Ottawa)* have recently been removed from the register.

GERMAN SHIPS IN NITRATE TRADE

A FEW large sailing ships are at present employed on the Cape Horn route, carrying nitrate of soda from ports in northern Chile to Europe. This trade is conducted almost exclusively in German ships.

As already noted in these pages, Germany now owns twelve sailing ships, of 28,808 tons net. With two exceptions, these vessels are of pre-war construction, built between 1891 and 1911, and seven were built in other countries. Among the latter are four former British ships, namely, *Elfreida* ex *Amasis,* ex *Saxon; Gustav* ex *Austrasia; Parma* ex *Arrow,* and *Pinnas,* ex *Fitzjames.*

The German nitrate carriers load general cargo and cement at Hamburg (occasionally finishing with coal and coke at a British port) for delivery at ports in southern Chile. At Valparaiso the last of the outward cargo is discharged. Thence the vessels proceed in ballast to a nitrate port and load for a port in the English Channel. Usually the voyage terminates at Antwerp or Hamburg.

The principal features of this trade are thus described by the American Vice Consul at Valparaiso:

> The outlets for Chilean nitrate are the ports of Taltal, Caleta Colosa, Antofagasta, Mejillones, Tocopilla, Iquique, Junis, Pisagua and Caleta Buena. With the exception of Antofagasta and Tocopilla, the only cargo that moves from these ports is nitrate of soda.
>
> Nitrate of soda is the chief export of Chile and its movement affects not only the outward ocean traffic from Chile,

but also inward trading as well, since vessels can not now afford to transport cargo to Chilean ports unless they are reasonably assured of sufficient quantities of this commodity for return cargo. Besides being a fair barometer of general business conditions in Chile, an active demand for nitrate of soda is an excellent guide to outgoing and incoming ocean traffic of the country.

Before the nitrate crisis of 1926-1927 numerous sailing vessels could be seen in the harbors of the above-mentioned ports, loading full cargoes of Chilean nitrate for all parts of the world. These ships were mostly the so-called "tramps," which are now fast disappearing from the seas, as permanent trade routes are being established and maintained to even the once outer posts of the world. These vessels were for the most part full-rigged ships and four-masted barks, the latter type being the more numerous. The majority of these sailed under the German and French flags with a few flying the English and Belgian colors.

The sailing ships of those times were attracted to Chilean waters more for the outward cargo of nitrate of soda than for any inward cargoes that they may have chanced upon. The demand for nitrate throughout the world was heavy, ocean bottoms scarce, freight rates high, and naturally the sailing ships had their share of the business. Ships would even come in ballast to the northern nitrate ports of Chile with the expectation of receiving full cargoes.

Since the bottom dropped out of the market for Chilean natural nitrate in 1926-1927, due to high prices and competition with the synthetic product, manufactured principally in Germany, no nitrate was shipped, which naturally resulted in an appreciable reduction in the freight rates, and the sailing ship hoisted sails and sped to other ports.

At the present time there is only one permanent sailing ship line trading over an established route to Chile. This consists of a fleet of full-rigged ships and four-masted barks flying the German flag, which are owned and operated by E. F. Laeisz, of Hamburg.

After leaving Hamburg with general cargo and cement these ships go either to England for coal and coke or, if

coal and coke are not available, directly to Chile. The time required for the passage from Hamburg to the first Chilean port (usually Corral) is from 72 to 80 days, following the route around Cape Horn and thence up the Chilean coast to Valparaiso, where the last of the inward cargo is discharged.

The ships then proceed to one of the nitrate ports in the north of Chile to load a full cargo of nitrate for European ports, usually Antwerp or Hamburg. The homeward route is likewise around Cape Horn. This is the only established fleet of sailing ships operating in the foreign trade with Chile at the present time.

Occasionally one may see a sailing ship other than one of this fleet at the loading moorings in a northern port, but this is very exceptional.

There are also three sailing ships flying the Chilean flag engaged in the Chilean coastwise trade, transporting lumber and coal from the southern ports of Coronel, Corral, and Puerto Montt to the barren northern ports in the nitrate zone, but these ships seldom have return cargoes for the southern ports.

The German nitrate carriers are equipped with the most improved appliances for handling cargo, and the work of loading and discharging is conducted "steamboat fashion."

Recently a number of sailing ships, chiefly Finnish and Danish, have loaded guano at ports in Peru for ports on the Atlantic Coast and Europe, but these vessels have made the passage each way through the Panama Canal.

With the exception of a few sailing ships in the wheat trade from Australia to Europe, the German nitrate carriers are the only vessels of the old type now traversing the Cape Horn route.

AMUNDSEN'S SLOOP "GJOA"

THE distinction held by San Francisco as the world's greatest home port of the sailing ship is strikingly enhanced by the presence in that port of the sloop *Gjoa*, famous as the vessel in which Capt. Roald Amundsen sailed through the Northwest Passage.

Apart from her eminence in the records of Arctic exploration, the *Gjoa* occupies a unique position as the only vessel that ever made the passage from Europe "north about" to the Pacific Coast, a feat not likely soon to be repeated.

Although in no way related to the history of the sailing ship, the *Gjoa's* presence in San Francisco is noteworthy as an incident in the history of that port. The leading features of the vessel's voyage from Norway to these shores are set forth on a tablet displayed on board:

THE "GJOA"

In command of Captain Roald Amundsen with a crew of six men sailed from Christiania, Norway, 16 June, 1903.

Spent 22 months at Gjoa Harbor, King William's Land, taking magnetic observations to determine location of magnetic North Pole.

Proceeded westward and sailed through the Northwest Passage, the only time in history, in the summer of 1905.

Arrived at San Francisco in October, 1906.

The *Gjoa* was presented on the 16 June, 1909, to the Golden Gate Park Commissioners by Captain Roald Amundsen and Norwegians on

Pacific Coast through Norwegian Consul Henry Lund at San Francisco.

The *Gjoa* was built in Norway in 1872. Length 70 feet, beam 20 feet, and of 47 net register tons.

Upon the arrival of the *Gjoa* at San Francisco various plans for the disposition of the vessel were discussed. Among these was a suggestion to send her through the Panama Canal, as the first vessel to negotiate the new waterway and also the first vessel to circumnavigate the globe by the northern route.

In the end the plan that seemed most in keeping with the fitness of things was adopted. The *Gjoa* was bought by the Norwegian-born citizens of San Francisco and vicinity and by them presented to the city. The formal ceremony of acceptance took place on June 16, 1909. The occasion is thus described by the "Coast Seamen's Journal":

PRESENTATION OF THE "GJOA"

One of the most interesting ceremonies in the maritime annals of San Francisco took place on June 16, 1909, when Amundsen's famous sloop *Gjoa*, the only craft that ever navigated the Northwest Passage, was formally presented to that city, to be preserved for all time as a memento of the greatest achievement so far recorded in Polar exploration.

The presentation was made by Norwegian Consul Lund, representing Captain Roald Amundsen and the Norwegians of San Francisco and vicinity, to whose generosity and public spirit the city owes the gift of the *Gjoa*.

The most impressive feature of the occasion was the address of Professor George Davidson, Chief of the United States Coast and Geodetic Survey, and one of the most distinguished figures in the history of Polar exploration.

AMUNDSEN'S SLOOP "GJOA"

GOLDEN GATE PARK, SAN FRANCISCO

The venerable scientist reviewed the numerous efforts made by explorers to discover the Northwest Passage, beginning with the voyage of John Cabot in 1497, and touching upon the adventures of Frobisher, Davis, Hudson, Baffin, James, Fox, Behring, Parry, Franklin, and numerous others, whose names have become geographical terms, but who failed in the one great object of their travels.

Professor Davidson paid a high tribute to Amundsen, who, accompanied by six companions, and in an unpretentious vessel, succeeded where others had failed. Professor Davidson, speaking generally, attributed failure in the previous instances to the fact that these expeditions were cumbersome and literally "ate themselves up," while Amundsen was unencumbered by baggage and aided by improved scientific instruments.

On July 5, 1909, the *Gjoa* was permanently berthed in Golden Gate Park. The "last voyage" of the historic craft was an important event in the life of the city. The date coincided with the celebration of the "Glorious Fourth," and the citizens assembled *en masse* to witness the thrilling spectacle of beaching the vessel. Not a cheer went up when she struck bottom for the first time. A hush fell upon the great assemblage, accentuated by the roar of the surf as it broke on the beach and lapped the weatherworn planking of the old vessel, as though in a last embrace.

At low tide many persons loitered about the *Gjoa,* now lying high and dry, and critically scanned her lines. Many old seafarers expressed their admiration of a model that combined the highest elements of the shipbuilder's art, strength and sweetness. Built as a sealer, she might have served as a yacht! And this despite the thick sheathing

which was bolted to the underbody as a defense against ice.

The seamen of the port expressed in characteristic fashion their appreciation of the *Gjoa's* "landing ceremony," as we read in the "Coast Seamen's Journal":

> The *Gjoa* now boasts double honors, as the first and only craft to sail through the long-sought Northwest Passage, and as the first and only vessel to grace a great public park. San Francisco is proud of the little old *Gjoa* and will cherish her to remotest time. So long as the human heart shall beat responsive to the call of Science, so long as mankind shall appreciate the seamen's deeds of daring upon the vasty deep, so long will the *Gjoa* be regarded by a grateful and admiring world as "a thing of beauty and a joy forever."

Fronting the Pacific Ocean and headed due northwest, the *Gjoa* is an object of compelling interest to the many visitors from all parts of the world who daily pass through San Francisco's great playground. Here she will stand while her frame endures, as a symbol of the spirit of maritime adventure, to which the city owes its origin and greatness, a memorial of an epic voyage of discovery, and a fitting monument to a great seaman.

TABLE 8

WORLD'S SAILING VESSELS, 1,000 TONS NET AND UPWARD

From Lloyd's Register, 1928-29

NAME OF VESSEL	RIG	TONNAGE GROSS	TONNAGE NET	BUILT	YEAR	FLAG	HOME PORT
ABNER COBURN	shp.	1972	1878	Bath, Me.	1882	U. S.	San Francisco
ADDISON E. BULLARD	4m. sch.	1485	1223	Rockport, Me.	1904	" "	Mobile
ALBERT D. CUMMINS	4m. "	1163	1081	Beaumont, Tex.	1920	" "	Wilmington, Del.
ALICE L. PENDLETON	4m. "	1394	1295	Wilmington, N. C.	1917	" "	New York
ex Hauppauge							
ALICE VERZONE	4m. sch.	1145	1032	Biloxi, Miss.	1919	" "	Mobile
ex Pat Harrison							
ALICIA HAVISIDE	5m. bkn.	2265	2132	Samoa, Calif.	1919	" "	San Francisco
ANANDALE	4m. sch.	1630	1530	Sharptown, Md.	1919	" "	New York
ANNE COMYN	5m. bkn.	2265	2137	Rolph, Calif.	1920	" "	San Francisco
ANNIE M. REID	4m. bk.	2165	2079	Port Glasgow	1892	" "	" "
ex Howard D. Troop							
ANNIE M. ROLPH	bkn.	1393	1226	Rolph, Calif.	1919	" "	" "
ARCHIBALD RUSSELL	4m. bk.	2354	2048	Greenock	1905	Finnish	Mariehamn
ARRAS	4m. sch.	1617	1268	Seattle, Wash.	1918	French	Brest
AUGUSTA G. HILTON	4m. "	1561	1411	Thomaston, Me.	1918	U. S.	Boston
AURORA	4m. "	1211	1070	Everett, Wash.	1901	" "	San Francisco
B. S. TAYLOR	4m. "	1488	1389	Wilmington, Del.	1919	" "	Baltimore
ex W. H. Woodin							

World's Sailing Vessels, 1000 Tons Net and Upward [*Continued*]

Name of Vessel	Rig	Tonnage Gross	Tonnage Net	Built	Year	Flag	Home Port
Beatrice	4m. bk.	2107	1923	Greenock	1883	Swedish	Gothenburg
ex Svithiod							
ex Routenburn							
Bessie M. Dustin	4m. sch.	1263	1125	Thomaston, Me.	1918	U. S.	Boston
ex Margaret Throop							
Bluebird	4m. sch.	1618	1494	Seattle, Wash.	1918	" "	Savannah
ex Ypres							
Boieldieu	bk.	2208	1981	Nantes	1902	French	Nantes
Bonchamp	"	2193	1949	St. Nazaire	1902	"	"
Bonneveine	"	2617	1995	La Seyne	1902	"	Havre
Bossuet	"	2204	1954	Nantes	1900	"	Nantes
Bourne	3m. sch.	1626	1484	Bath, Me.	1921	U. S.	Fall River
Bradford E. Jones	4m. "	1648	1510	Boothbay Harbor	1919	" "	Boston
Brasilaira	bk.	1321	1201	Sunderland	1887	Brazilian	Rio Janeiro
ex Verdi							
ex Luhe							
ex Arete							
Bremen	"	2470	2096	St. Nazaire	1902	German	Bremen
ex Lisbeth							
ex Rene							
Bright	5m. sch.	2176	2011	Seattle	1918	U. S.	Bath, Me.

BRINA P. PENDLETON	4m. "	1513	1404	Bath, Me.	1918	" "	New York
BUCCANEER	5m. bkn.	2014	1883	Beaumont, Tex.	1918	" "	New York
ex City of Beaumont							
CALBUCO	bk.	1619	1481	Glasgow	1885	Chilean	Puerto Montt
ex Karmo							
ex Circe							
CALUMET	4m sch.	1241	1094	Bath, Me.	1900	Brazilian	Sao Paulo
C. B. PEDERSEN	bk.	2142	1843	Pertusola	1891	Swedish	Gothenburg
ex Svecia							
ex Elsa Olander							
ex Perm							
ex Emanuele Accame							
⊕ CENTENNIAL	4m. bkn.	1287	1139	E. Boston	1875	U. S.	San Francisco
CHARLES H. MACDOWELL	4m. sch.	1326	1159	Jacksonville	1917	" "	Chicago
CHARLES J. HOOPER	3m. "	2217	2131	Stratford, Conn.	1922	" "	Wilmington, Del.
CITY OF PORTLAND	5m. "	1833	1263	Sauvie Island, Ore.	1916	" "	New York
⊕ *CITY OF SYDNEY	6m. bkn.	2903	2660	Chester, Pa.	1875	" "	San Francisco
COMMODORE	4m. sch.	1526	1339	Seattle	1919	" "	Honolulu
ex Blaatind							
CONQUEROR	bk.	1395	1221	Rolph, Calif.	1918	" "	San Francisco
⊕ CORA F. CRESSY	5m. sch.	2499	2089	Bath, Me.	1902	" "	Boston
COURTNEY C. HOUCK	5m. "	1627	1357	" "	1913	" "	"
⊕ CRILLON	shp.	2256	1979	St. Nazaire	1902	French	Nantes
DANTE	sch.	1237	1105	Pt. Blakeley, Wash.	1902	Peruvian	Callao
ex H. K. Hall							

* Sold for breaking up

⊕ Removed from Lloyd's Register 1939-40

World's Sailing Vessels, 1000 Tons Net and Upward [*Continued*]

Name of Vessel	Rig	Tonnage Gross	Tonnage Net	Built	Year	Flag	Home Port
*David Dollar	4m. bk.	2832	2660	Liverpool	1893	U. S.	San Francisco
ex Thielbek							
ex Prince Robert							
⊕ Del Mar	5m. sch.	1260	1103	Pt. Blakeley, Wash.	1903	" "	San Diego
ex George E. Billings							
De Witt Brown	4m. "	1325	1159	Jacksonville	1918	" "	Chicago
Domingo F. Sarmiento	4m. "	1476	1239	Millbridge, Me.	1901	Argentine	Buenos Ayres
ex Margaret							
ex Frances C. Tunnell							
Dorothy H. Sterling	6m. "	2526	2350	Portland, Ore.	1920	U. S.	Seattle
ex Oregon Pine							
Dova Lisboa	bk.	1492	1361	Sunderland	1885	Unnamed	Unnamed
ex Cambrian Chieftain							
Dunham Wheeler	5m. sch.	1926	1765	Bath, Me.	1917	U. S.	New York
Dunsyre	shp.	2140	2014	Port Glasgow	1891	" "	" "
†Duquesne	"	2174	1926	Nantes	1901	French	Nantes
†Edmond Rostand	bk.	2203	1951	St. Nazaire	1900	"	"
Edna Hoyt	5m. sch.	1512	1384	Thomaston, Me.	1920	U. S.	Boston
⊕ Edward B. Winslow	5m. "	2046	1906	Bath, Me.	1918	" "	Portland, Me.
ex St. John's, N. F.							
Elfrieda	bk.	1614	1504	Port Glasgow	1893	German	Hamburg
ex Amasis							
ex Saxon							

ELINOR H.	5m. sch.	1569	1409	Dockton, Wash.	1920	U. S.	Seattle
ELLA A.	4m. "	1565	1413	" "	"	" "	"
ELLA PIERCE THURLOW	4m. "	1505	1348	Rockland, Me.	1918	" "	Boston
EMILY F. WHITNEY	bk.	1318	1207	E. Boston	1880	" "	San Francisco
ESTELLE KRIEGER	4m. sch.	1172	1047	Thomaston, Me.	1899	" "	Boston
⊕ ESTRELLA	bk.	1452	1344	Stockton, Eng.	1880	Italian	Genoa
ex Sierra Estrella							
FALKETIND	5m. sch.	2101	1913	Oakland, Calif.	1917	Norwegian	Oslo
ex Flagstaff							
FAVELL	bk.	1334	1106	Bristol, England	1895	Finnish	Helsingfors
FOREST FRIEND	5m. bkn.	1615	1436	Aberdeen, Wash.	1919	U. S.	Seattle
FOREST PRIDE	5m. "	1600	1424	" "	"	" "	"
G. A. KOHLER	4m. sch.	1462	1365	Wilmington, Del.	"	" "	Baltimore
ex Charles S. Gawthrop							
GARDINER G. DEERING	5m. "	1982	1714	Bath, Me.	1903	U. S.	Boston
†† GARTHPOOL	4m. shp.	2842	2652	Dundee	1891	British	Montreal
ex Juteopolis							
† GENERAL DE NEGRIER	bk.	2196	1946	Nantes	1901	French	Nantes
† GENERAL DE SONIS	"	2190	1943	"	"	"	"
GEORGE CURTIS	"	1838	1680	Waldoboro, Me.	1884	U. S.	San Francisco
GEORGE U. HIND	bkn.	1389	1224	Rolph, Calif.	1919	" "	" "

* Former German vessel

† Recently broken up

⊕ †† Wrecked, [illegible]

World's Sailing Vessels, 1000 Tons Net and Upward [*Continued*]

Name of Vessel	Rig	Tonnage Gross	Tonnage Net	Built	Year	Flag	Home Port
Gerbeviller	5m. sch.	2128	1976	Tacoma, Wash.	1918	British	Montreal
Golden Gate	4m. bk.	2332	2161	Whitehaven, Eng.	1888	U. S.	San Francisco
ex Lord Shaftesbury							
Grace Harwar	shp.	1816	1565	Port Glasgow	1889	Finnish	Mariehamn
Griffson	3m. sch.	2259	2149	Seattle, Wash.	1920	U. S.	Seattle
Guardadora	4m. bk.	3166	2987	Liverpool	1892	British	Liverpool
ex J. C. Vinnen							
ex Osborne							
Guaytecas	"	1241	1179	Sunderland	1884	Chilean	Valparaiso
ex Bille							
ex Westward Ho							
⊕ Gustav	4m. "	2691	2525	Port Glasgow	1892	German	Hamburg
ex Austrasia							
Gwydyr Castle	"	1512	1408	Dundee	1893	British	P. Louis, Mau.
ex Newfield							
H. W. Brown	5m. bkn.	2352	2190	Orange, Tex.	1919	U. S.	Boston
ex Macerata							
Harry G. Deering	4m. sch.	1342	1163	Bath, Me.	1918	" "	"
Helen Barnet Gring	4m. "	1226	1127	Camden, Me.	1919	" "	Boston
Helen B. Sterling	6m. "	2526	2350	Portland, Ore.	1920	" "	Seattle
ex Oregon Fir							

To Remove from Register 1/7/30: Renamed "Mellowood"

HERBERT L. RAWDING	4m. "	1219	1109	Stockton Springs, Me.	"	" "		"
HERDIS	4m. "	1220	1124	Chelsea, Mass.	1917	" "		Baltimore
HERZOGIN CECILIE	4m. bk.	3111	2584	Bremerhaven	1902	Finnish		Mariehamn
⊕ HERZOGIN SOPHIE CHARLOTTE ex Albert Rickmers	4m. "	2498	2315	Wesermunde-G	1894	"		"
HESPER	4m. sch.	1348	1231	Fall River, Mass.	1918	U. S.		Boston
HESPERIAN	bkn.	1385	1225	Rolph, Calif.	1918	" "		San Francisco
HORACE A. STONE	4m. sch.	1376	1237	Brewer, Me.	1903	" "		Boston
HOUGOMONT	4m. bk.	2378	2074	Greenock	1897	Finnish		Mariehamn
IDA S. DOW	4m. sch.	1411	1280	Thomaston, Me.	1918	U. S.		Boston
JAMES C. HAMLEN	4m. "	1138	1012	S. Portland, Me.	1920	" "		Portland, Me.
*JAMES DOLLAR ex Orotava ex Comet	4m. bk.	3014	2812	Port Glasgow	1901	" "		San Francisco
JAMES ROLPH ex Celtic Monarch	shp.	2108	1927	Liverpool	1884	" "	"	"
⊕ JAMES TUFT	4m. bkn.	1274	1043	Pt. Blakeley, Wash.	1901	" "	"	"
*JANET DOLLAR ex Egon ex Eclipse	4m. bk.	3091	2898	Port Glasgow	1902	" "	"	"
JEANNE D'ARC ex Belen	bk.	2202	1987	St. Nazaire	1901	French		Havre

*Former German vessel

⊕ Removed from Lloyd's Register 1929-30

World's Sailing Vessels, 1000 Tons Net and Upward [*Continued*]

Name of Vessel	Rig	Tonnage Gross	Tonnage Net	Built	Year	Flag	Home Port
Jennie Flood Kreger	5m. sch.	1838	1614	Belfast, Me.	1919	U. S.	Boston
Joaquin Pujol ex Lochee	bk.	1786	1703	Dundee	1874	Spanish	Barcelona
John W. Wells	5m. sch.	2527	2374	St. Helens, Ore.	1918	U. S.	San Francisco
*Joseph Dollar ex Schurbek	4m. bk.	2409	2262	Glasgow	1902	" "	" "
Josephine A. McQuesten	4m. sch.	1608	1462	Rockland, Me.	1920	U. S.	Rockland, Me.
Josiah B. Chase	4m. "	1661	1518	Boothbay Har., Me.	1921	" "	Boston
Kate G. Pedersen	5m. bkn.	2269	2106	Columbia City, Ore.	1920	" "	San Francisco
Katherine Mackall	5m. "	2262	2119	Wilmington, Calif.	1919	" "	" "
Killoran	bk.	1817	1523	Troon	1900	Finnish	Mariehamn
Kingsway	4m. sch.	1272	1107	Mystic, Conn.	1918	U. S.	New York
K. V. Kruse	5m. "	1728	1554	North Bend, Ore.	1920	" "	San Francisco
*Lasbek ex Ben Dearg	shp.	2335	2192	Glasgow	1894	U. S.	" "
Laura ex Claus ex Travancore	"	1925	1824	Port Glasgow	1892	Chilean	Valparaiso
L'Avenir	4m. bk.	2738	2074	Bremerhaven	1908	Belgian	Antwerp
Lawhill	"	2816	2540	Kiel	1889	Finnish	Mariehamn
Letizia ex Meridian	"	1407	1295	Dundee	1892	Italian	Genoa

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⊕ LEVI G. BURGESS	"	1617	1475	Thomaston, Me.	1877	U. S.	Portland, Ore.
LINA	"	1155	1057	Dumbarton	1876	Portuguese	Pravia, C.V.I.
ex Eugenia Emilia							
ex Tiburon							
ex Coriolanus							
LOCH LINNHE	"	1460	1323	Glasgow	1876	Finnish	Nystad
⊕ LORENZO	"	2426	2128	Grand Queilly	1902	Italian	Genoa
ex Andre Theodore							
LUTHER LITTLE	4m. sch.	1234	1119	Somerset, Mass.	1917	U. S.	Boston
M. VIVIAN PEIRCE	4m. "	1511	1380	Thomaston, Me.	1919	" "	"
MABEL A. FRYE	4m. "	1151	1036	Harrington, Me.	1920	" "	"
⊕ MACDIARMID	shp.	1624	1500	Dumbarton	1883	Italian	Genoa
*MAE DOLLAR	4m. bk.	3410	3197	Port Glasgow	1892	U. S.	San Francisco
ex Adolf Vinnen							
ex Alsterdamm							
ex Somali							
MAIPO	shp.	1770	1674	Wesermunde-G	1893	Peruvian	Callao
†MARGUERITE MOLINOS	bk.	1928	1775	Havre	1897	French	Havre
MARIE DE RONDE	5m. sch.	2376	2181	Aberdeen, Wash.	1918	U. S.	Rockland, Me.
MARIE F. CUMMINS	4m. "	1167	1085	Beaumont, Tex.	1919	" "	Wilmington, Del.
MARION CHILCOTT	shp.	1738	1511	Port Glasgow	1882	British	Trinidad
ex Kilbrannan							

*Former German vessel

† Recently broken up

⊕ Re-rigged [illegible]

World's Sailing Vessels, 1000 Tons Net and Upward [*Continued*]

Name of vessel	Rig	Tonnage Gross	Tonnage Net	Built	Year	Flag	Home port
Marsala ex City of Vicksburg	5m. bkn.	2422	2173	Pascagoula, Miss.	1919	U. S.	New York
Marti ex Hainaut	3m. sch.	1763	1698	Barrow	1887	Cuban	Havana
Mary Bradford Peirce	4m. "	1133	1029	Boothbay Har., Me.	1919	U. S.	Boston
*Mary Dollar ex Hans	4m. bk.	3102	2880	Port Glasgow	1904	" "	San Francisco
Mary F. Barrett	5m. sch.	1833	1564	Bath, Me.	1901	" "	Boston
Mary H. Diebold	5m. "	1516	1397	Newcastle, Me.	1920	" "	"
Maude M. Morey	4m. "	1364	1245	Bath, Me.	1917	" "	"
Molfetta ex City of Natchez	bkn.	2462	2229	Pascagoula, Miss.	1920	" "	New York
⊕ Monfalcone	5m. "	2418	2270	Orange, Tex.	1919	" "	Los Angeles
Monitor	"	2247	2102	Benicia, Calif.	1920	" "	San Francisco
*Monongahela ex Dalbek ex Balasore	4m. shp.	2782	2546	Glasgow	1892	" "	" "
*Moshula ex Kurt	4m. bk.	3116	2911	Port Glasgow	1904	U. S.	San Francisco
Mozart	4m. bkn.	1987	1749	Greenock	"	Finnish	Mariehamn
Nancy	5m. sch.	2117	1678	Portland, Ore.	1918	U. S.	Philadelphia

B Kennard, from Lloyd's Register 1929-30

NELSON	bk.	1323	1257	Port Glasgow	1874	Chilean	Valparaiso
NITEROI	"	1317	1243	Savona	1883	Brazilian	Rio Janeiro
ex Due Cugini							
ex Paul Barbe							
ex Fed e Amore							
OAKLEY C. CURTIS	5m. sch.	2374	2000	Bath, Me.	1901	U. S.	New York
OLDENBURG	shp.	2259	2010	St. Nazaire	1902	German	Hamburg
ex Laennec							
OLGA M.	bkn.	1364	1262	Chester, Pa.	1873	Brazilian	Sao Paulo
ex Crowley							
ex S. S. City of Panama							
OLIVEBANK	4m. bk.	2795	2427	Glasgow	1892	Finnish	Mariehamn
ex Caledonia							
ex Olivebank							
OMEGA	4m. "	2471	2360	Greenock	1887	Peruvian	Callao
ex Drumcliff							
ORIENTAL	"	1688	1550	Bath, Me.	1874	U. S.	San Francisco
PADUA	4m. "	3064	2678	Wesermunde-G	1926	German	Hamburg
PAMELIA	"	1438	1332	Hamburg	1888	Norwegian	Langesund
PAMIR	4m. "	3020	2777	"	1905	German	Hamburg
PARCHIM	shp.	1802	1716	Wesermunde-G	1889	Finnish	Mariehamn

*Former German vessel

Renamed from Lloyd's register, 1914-15

World's Sailing Vessels, 1000 Tons Net and Upward [*Continued*]

Name of Vessel	Rig	Tonnage Gross	Tonnage Net	Built	Year	Flag	Home Port
Parma ex Arrow	4m. bk.	3084	2882	Port Glasgow	1902	German	Hamburg
Passat	4m. "	3091	2870	Hamburg	1911	"	"
Paul E. Thurlow	4m. sch.	1590	1453	Rockland, Me.	1918	U. S.	Boston
Pehr Ugland	bk.	1316	1199	Alloa, Scot.	1891	Norwegian	Fredrikstad
Peking	4m. "	3100	2851	Hamburg	1911	German	Hamburg
Pellworm ex Faith ex Marechal Suchet	shp.	2270	1991	St. Nazaire	1902	"	"
Penang ex Albert Rickmers	"	2019	1743	Bremerhaven	1905	Finnish	Mariehamn
Peronne	4m. sch.	1618	1230	Seattle, Wash.	1918	French	Brest
Phyllis Comyn ex Cremona	5m. bkn.	2267	2130	Eureka, Calif.	1919	U. S.	San Francisco
Pinnas ex Fitzjames	shp.	1946	1790	Port Glasgow	1902	German	Hamburg
Plus	bk.	1251	1117	Hamburg	1885	Finnish	Mariehamn
*Pommern ex Mneme	4m. "	2376	2114	Glasgow	1903	"	"

PONAPE	4m. "	2342	1974	Genoa	"	"	"
ex Bellhouse							
ex Ponape							
ex Regina Elena							
PRIWALL	4m. "	3185	2834	Hamburg	1920	German	Hamburg
PROMPT	"	1400	1261	"	1887	Finnish	Mariehamn
†REINBEK	4m. "	2765	2630	Whitehaven, Eng.	1889	U. S.	San Francisco
ex Lord Rosebery							
ex Windermere							
REINE MARIE STEWART	4m. sch.	1307	1168	Thomaston, Me.	1919	" "	Rockland
RENE KERVILER	shp.	2677	2291	St. Nazaire	1902	French	Nantes
REWA	4m. bk.	2999	2817	Whitehaven, Eng.	1889	British	Wellington, N. Z.
ex Alice A. Leigh							
RICHELIEU	4m. bk.	3116	2808	Hamburg	1916	French	Nantes
ROBERT L. LINTON	5m. sch.	1966	1828	Noank, Conn.	1917	U. S.	New York
ex Asta							
ROLPH	4m. bkn.	1386	1224	Rolph, Calif.	1919	" "	San Francisco
ROSAMOND	4m. sch.	1084	1068	Benicia, Calif.	1900	" "	Seward, Alaska
RUSSELL HAVISIDE	5m. bkn.	2264	2133	Eureka, Calif.	1920	" "	San Francisco
ex Cresoline							
ST. PAUL	shp.	1894	1824	Bath, Me.	1874	" "	Seattle

* Foundered in the English Channel, November 25, 1928.

† Former German vessel

World's Sailing Vessels, 1000 Tons Net and Upward [*Continued*]

Name of Vessel	Rig	Tonnage Gross	Tonnage Net	Built	Year	Flag	Home Port
San Pedro	bk.	1142	1061	Hull, Eng.	1864	Uruguayan	Montevideo
ex Charlotte							
ex Ville de Redon							
ex Brilliant							
ex Marian							
Sant' Anna	"	1336	1217	Glasgow	1884	Italian	Genoa
ex Edinburghshire							
Sipanjka Luka	5m. sch.	2266	2094	Portland, Ore.	1921	Peruvian	Callao
ex Undaunted							
Sir Thomas J. Lipton	4m. "	1359	1188	Brunswick, Ga.	1919	U. S.	New York
Snetind	4m. "	1470	1305	Seattle, Wash.	"	" "	Boston
Sofia	bk.	1404	1329	Port Glasgow	1875	Peruvian	Callao
ex Cuatro Hermanas							
ex Cavour							
ex Commonwealth							
Star of Alaska	shp.	1862	1590	Glasgow	1886	U. S.	San Francisco
ex Balclutha							
Star of England	bk.	2123	1806	Dumbarton	1893	" "	" "
ex Abby Palmer							
ex Blairmore							
Star of Finland	"	1699	1425	Bath, Me.	1899	" "	" "
ex Kaiulani							

Removed from Lloyd's Register 1927-28

STAR OF FRANCE	shp.	1766	1514	Belfast	1877	" "	"	"
†† STAR OF GREENLAND ex Hawaiian Isles	4m. bk.	2179	1944	Glasgow	1892	" "	"	"
STAR OF HOLLAND ex Homeward Bound ex Otto Gildemeister ex Zemindar	4m. "	2301	1965	Belfast	1885	" "	"	"
STAR OF ICELAND ex Willscott	"	2161	1875	Port Glasgow	1896	" "	"	"
STAR OF LAPLAND ex Atlas	shp.	3381	3006	Bath, Me.	1902	" "	"	"
STAR OF SCOTLAND ex Kenilworth	4m. bk.	2598	2233	Port Glasgow	1887	" "	"	"
STAR OF SHETLAND ex Edward Sewall	4m. "	3345	2850	Bath, Me.	1899	" "	"	"
STAR OF ZEALAND ex Astral	4m. "	3292	2987	" "	1900	" "	"	"
⊕ T. N. BARNSDALL	4m. sch.	1309	1213	Camden, Me.	1920	U. S.		Rockland
TELLUS ex Evertsen	bk.	1465	1363	Rotterdam	1891	Peruvian		Callao
THISTLE	5m. sch.	1587	1462	St. Helens, Ore.	1918	U. S.		San Francisco
TOVARISCH ex Lauriston	4m. bk.	2472	2129	Belfast	1892	Russian		Leningrad

⊕ Renamed from Kfg. Kegeler 1924

†† Sold to Swiss and renamed ABRAHAM ROSENTHAL (1924).

World's Sailing Vessels, 1000 Tons Net and Upward [*Continued*]

Name of Vessel	Rig	Tonnage Gross	Tonnage Net	Built	Year	Flag	Home Port
Tusitala ex Sophie ex Sierra Lucena ex Inveruglas	shp.	1748	1624	Greenock	1883	U. S.	New York
Vigilant	4m. sch.	1603	1439	Hoquiam, Wash.	1920	" "	San Francisco
Viking	4m. bk.	2952	2665	Copenhagen	1907	Danish	Copenhagen
⊕ Ville de Mulhouse	4m. "	3110	2798	Havre	1899	French	Nantes
⊕ Vinda Llusa	shp.	1711	1609	Glasgow	1887	Spanish	Barcelona
Virginia Dare	4m. sch.	1569	1425	Newcastle, Me.	1919	U. S.	New York
*William Dollar ex Walkure ex Alsterberg	4m. bk.	3239	3036	Dumbarton	1902	U. S.	San Francisco
William H. Harriman	4m. sch.	1450	1345	Thomaston, Me.	1919	" "	Boston
William Taylor	4m. sch.	1358	1187	Brunswick, Ga.	1917	" "	New York
William T. Lewis ex Robert Duncan	4m. bk.	2157	1965	Pt. Glasgow	1891	" "	San Francisco
Willis A. Holden	4m. "	1188	1040	Ballard, Wash.	1902	" "	Pensacola

⊕ Removed from Lloyd's Register

WINTERHUDE	bk.	1972	1709	Bremerhaven	1898	Finnish	Mariehamn
ex Selma Hemsoth							
ex Winterhude							
ex Mabel Rickmers							
ZEBEDEE E. CLIFF	4m. sch.	1361	1254	E. Boothbay, Me.	1920	U. S.	Boston

*Former German vessel

The oldest vessel in the foregoing list is the Uruguayan bark *San Pedro,* built in 1864, and the newest is the German four-masted bark *Padua,* built in 1926.

The largest vessel listed is the American four-masted bark *William Dollar,* of 3036 tons net, and the smallest is the American four-masted schooner *James C. Hamlen,* of 1012 tons net.

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